# using your Treo™ 650 smartphone

## by palmOne

Includes setup information and instructions for most tasks

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PN: 406-10349-00

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# Welcome

Congratulations on the purchase of your Treo™ 650 smartphone by palmOne. In one compact and indispensable device, you now have all of the following:

- An advanced mobile phone*
- A Palm Powered™ organizer with portable expansion capability (MultiMediaCard/Secure Digital/Secure Digital input/output [SD/SDIO] )
- Email**
- Web browsing**
- SMS*
- A digital camera***

* Requires service contract with your wireless service provider.

** Requires service contract and data service from your wireless service provider.

***There are two models of the Treo 650 smartphone: One model has a built-in camera and the other model does not have a camera. The packaging for your smartphone identifies if a camera is included.

This guide will help you set up your Treo 650 smartphone and quickly learn to use it.



LOOK HERE: Don't miss the helpful tips and cross-references given in this column.

# If you read nothing else...

This guide is designed to get you using your Treo™ 650 smartphone by palmOne quickly, starting with just the basics. As you become more comfortable with your smartphone and want to learn more, come back and read the other sections.

## Read This Now: Getting Started

Follow the instructions to set up your Treo smartphone and make your first call.

## First Day: Learning the Basics

Learn how to enter text, move around the screen, and set up synchronization.

## First Week: Using Phone, Web, Messaging, and Email

Learn how to use all the great wireless features of your Treo smartphone, including phone, email, web browsing, and messaging.

## First Two Weeks: Using Organizer Features

Your Treo 650 smartphone is not just a phone. It also includes a full-featured Palm Powered™ organizer that gives you instant access to your Calendar, Tasks, Memos, Music, Calculator, and more.

## First Month: Managing Applications

Learn how to add or delete extra applications and use an expansion card with your smartphone.

## When You're Ready: Customizing Your Treo smartphone

Once you've learned the basics, you'll want to explore additional features on your smartphone and customize its settings.

## If Something Happens: Help

If something goes wrong or you can't figure out how to use a feature, we can help. Check this chapter for answers to frequently asked questions.

# read this now:
# getting started

# What you'll need

As you work through the instructions in this guide, you'll need all the items that came in the Treo™ 650 smartphone box (see "Treo™ 650 smartphone overview" on page 7) as well as the following:

- An activated mobile account with data services*
- A location with wireless coverage for your phone
- An electrical outlet
- The computer with which you will synchronize your personal information
- The palmOne Software Installation CD included in the box

* You cannot use email, web browsing, or messaging without data services of some type.

# Treo™ 650 smartphone overview

You should have received all of the following components in the Treo 650 smartphone box:

## Hardware

- Treo handset
- AC charger
- USB sync cable
- Headset
- Battery
- Electric socket adapter(s) (if required in region)

## Documentation and software

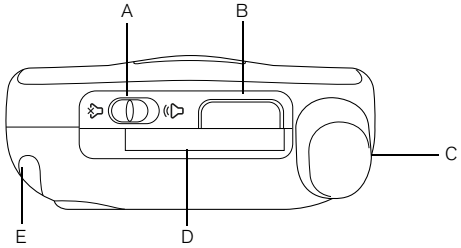
- Using Your Treo™ 650 smartphone by palmOne (this guide)
- palmOne Software Installation CD
- palmOne warranty

Warranty does not cover damage by Secure Digital (SD) cards that do not meet SD Memory Card Specifications. SD cards that do not meet SD Memory Card Specifications may damage your Treo 650 smartphone. SD cards that do meet SD Memory Card Specifications are marked with the following logo:

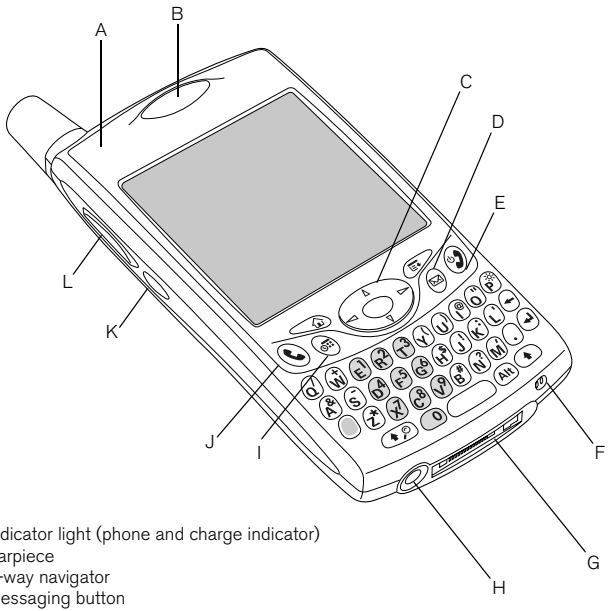
The Software Installation CD includes free bonus software for your phone and synchronization software for your computer.

## Smartphone handset features

The following illustrations show the locations and names of the physical features of the Treo 650 smartphone. Refer to these illustrations while following the instructions in this guide.



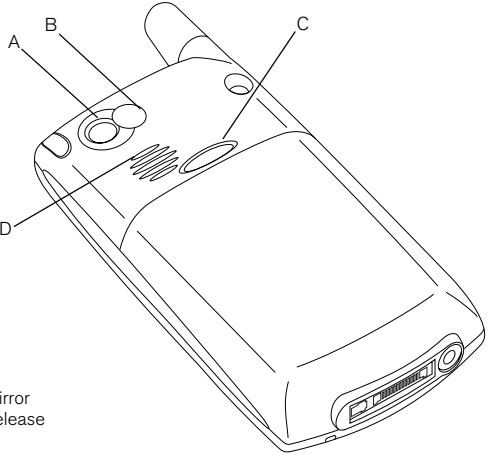

A. Ringer switch
B. Infrared (IR) port
C. Antenna
D. Expansion card slot
E. Stylus




A. Indicator light (phone and charge indicator)
B. Earpiece
C. 5-way navigator
D. Messaging button
E. Power/End button
F. Microphone
G. Multi-connector
H Headset jack
I. Calendar button
J. Phone/Send button
K. Side button
L. Volume button

Be careful not to scratch or crush the screen. Do not store the smartphone in a place where other items might damage it. Visit www.palmOne.com/us/support to find carrying cases that protect the screen and other useful accessories.

IMPORTANT: The speaker includes a large magnet, so be sure not to store your smartphone near credit cards or other items that could be demagnetized.



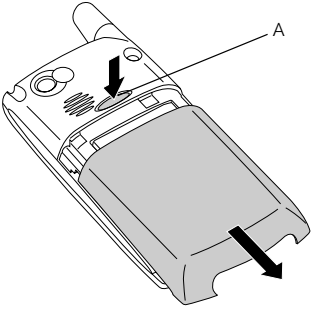

A. Camera lens*
B. Self-portrait mirror
C. Battery door release
D. Speaker

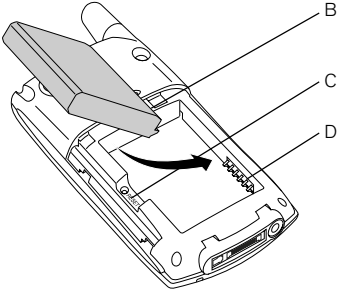
* There are two models of Treo 650 smartphone: One model has a built-in camera and the other model does not have a camera. The packaging for your smartphone identifies if a camera is included.

# Installing the battery

1. Press the Battery Door Release button and slide the battery door downward to remove it from your smartphone.
2. Align the metal contacts on the battery with the contacts inside the battery compartment.
3. Insert the battery into the compartment at a 45-degree angle, and then press it into place.
4. Slide the battery door onto the back of the phone until it clicks into place.

5. When the Welcome screen appears, follow the onscreen instructions to set up your smartphone.



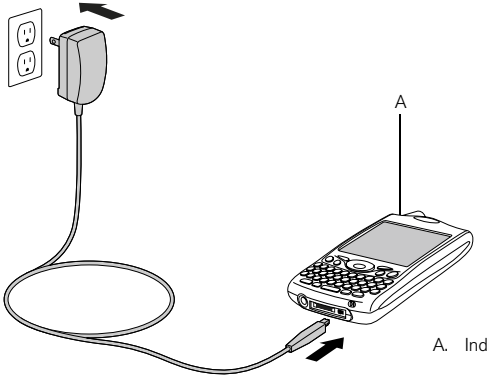




A. Battery Door Release button
B. Battery contacts
C. Notch
D. Phone contacts

# Charging the battery

Before using your Treo 650 smartphone, you need to charge the battery. It may not turn on at all when you first remove it from the box. We recommend 4 hours for a full charge, or until the indicator light is solid green.

1. Plug the AC charger into a wall outlet. If necessary, connect an adapter.
2. Connect the charger cable to the bottom of the smartphone. Make sure the arrow on the connector is facing up, toward the screen.




A. Indicator light

3. To confirm your smartphone is charging, check the indicator light.
   - When the indicator light is solid red, your smartphone is charging.
   - When the indicator light turns solid green, your smartphone is fully charged.
   - If the indicator light does not turn on when you connect your smartphone to the AC charger, double-check the cable connection and the electrical outlet to which it is connected.

Battery consumption varies based on personal usage. Consumption factors include signal strength, speakerphone usage, and whether calls are data or voice calls.

When your smartphone is connected to a power source, the indicator light glows solid (versus flashing), and the color of the light indicates the charging state.

After you turn on your Treo smartphone, the onscreen battery icon displays power status:

- Full battery icon : Battery is charged
- Partial battery icon : Battery has some power and is not charging
- Empty battery icon : Battery needs charging immediately
- Red lightning bolt : Charging
- Green lightning bolt with full battery : Fully charged

To see exactly how much power is left in your battery, tap the onscreen battery icon.

# Turning the phone on and off

The indicator light flashes green when your phone is on and you're inside a coverage area. If you're outside a coverage area, the indicator light flashes amber.

Your smartphone includes a keyboard backlight for low-light conditions. The keyboard backlight activates automatically when the screen turns on. It turns off automatically when the screen turns off and when an active call lasts longer than a minute.

You can also press any application buttons on the front of your phone to wake up the screen and go directly to the application linked to that button.

You can use the Palm OS® features of your Treo 650 smartphone independently of the wireless features and applications. In other words, the screen and phone are designed to be turned off and on separately.

## Turning your phone on and off

When you turn on your Treo smartphone, it connects to a mobile phone network so that you can make and receive phone calls and use other wireless services.

1. Press and hold Power/End to turn on your phone. If Sound Mode is on, you'll hear a series of ascending tones. (See "Setting the ringer switch" on page 142 for more on Sound Mode.) After your phone locates a signal, you can use the phone and Internet features (if supported by the local network).
2. Press and hold Power/End again to turn off your phone. If Sound Mode is on, you'll hear a series of descending tones. When your phone is off, the device is not connected to any mobile phone network. You can still use the organizer and other Palm OS features. This is ideal for airplane flights and for maximizing battery life.

## Waking up the screen

To use the Palm OS features when your phone is off, you need to wake up the screen. You can also turn off your phone's screen without turning off your phone's wireless features.

1. Press Power/End to wake up the screen.
2. Briefly press Power/End to turn off the screen.

# Making your first call

Once your phone is activated, you can make your first call. We recommend that you charge your Treo 650 smartphone for a full 4 hours (or until the indicator light is solid green) before using it for the first time.

1. Press and hold Power/End. You will hear a series of ascending tones.
2. Allow the smartphone to complete a network search. The search may take several seconds. When it is complete, the Network Status icon appears in the upper-right corner of the screen.
3. Using the number pad on the keyboard, enter the desired phone number.
4. Press Phone/Send to dial.
5. When your call is complete, press Power/End or use the 5-way navigator to select Hang Up.

If No Service appears in the upper left or if you are unable to complete a call, you may need to activate your phone. Contact your wireless service provider for assistance.

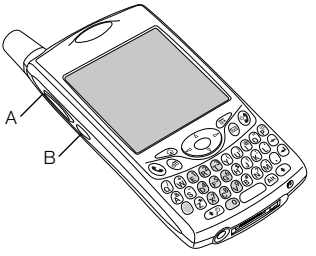
We recommend that you charge your Treo 650 smartphone for a full 4 hours (or until the indicator light is solid green) before using it for the first time.

To quickly redial your most recent call, press and hold the Phone/Send button to display the redial list.

If your phone number is not displayed, If your phone number doesn't appear in Phone Info, follow the steps on page 15. Next turn your phone off and on again before you check Phone Info again.

## Adjusting call volume

While a call is in progress, press the Volume button on the side of your phone to adjust call volume.




A. Volume button
B. Side button

## What's my number?

1. Make sure your phone is on (see "Turning your phone on and off" on page 14).
2. Press Phone/Send .
3. Open the Menus .
4. Select Options, and then select Phone Info.

A. Look here for your phone number

# first day: learning the basics

Some third-party applications may not work with the 5-way navigator, and you must use the stylus instead.

In this guide, we use arrow icons to indicate directions on the 5-way. These are different from any onscreen arrows that you tap with your stylus or select with the 5-way to display pick lists.

5-way buttons:

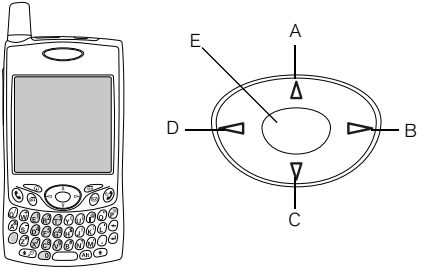
◀ ▶ ▲ ▼

Onscreen arrows:

# Moving around the screen

To move around the Treo™ 650 smartphone screen, you can use the 5-way navigator or you can tap items on the screen with the stylus. With use, you will find your own favorite way to scroll, highlight, and select menu items.

The 5-way includes Right, Left, Up, Down, and Center buttons.



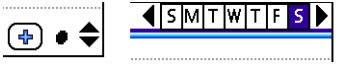

A. Up
B. Right
C. Down
D. Left
E. Center

## Scrolling through screens

As on a computer, you scroll on the Treo smartphone to move from field to field or page to page, or in some cases to highlight an item or option in a list. There are several methods of scrolling:

- Press the 5-way on the front of the Treo smartphone. Press Right ▶, Left ◀, Up ▲, or Down ▼ to move to the next field, button, or action in that direction.
- Press and hold Up ▲ to quickly scroll to the top of a list, or press and hold Down ▼ to quickly scroll to the bottom of a list.

- Tap an onscreen scroll arrow.



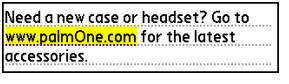

- When viewing a list screen, such as the Memo list:
  - Press Up ▲ or Down ▼ to scroll one screen at a time.
  - Press Center and then press Up ▲ or Down ▼ to scroll between line items.
  - Press Left ◀ to switch from item scrolling to screen scrolling.
- Press Option and Up ▲ or Down ▼ to scroll to the next page of information within the current record.
- When inside a text field, press Right ▶ or Left ◀ to scroll to the next character or word, and press Up ▲ or Down ▼ to scroll between lines.
- Drag the slider of an onscreen scroll bar.

## Highlighting items

The 5-way lets you highlight items before opening or selecting them.

- When an onscreen button (OK, Cancel, etc.) or pick list is highlighted, the button or pick list item acquires a glow around its border.

- When a phone number, email address, or web link is highlighted on a web page or in a message, the text appears in reverse type (light text on a dark background).




- When an entire text entry field is highlighted, you can press Center to edit the text. After you edit the text, press Center again to highlight the entire field.

Once you've opened an application (see "Opening applications" on page 26), you can experiment with using the 5-way to highlight different screen elements.

You can also use the stylus to highlight text on the screen. When text is highlighted, it appears in reverse type.

- Drag the stylus across the text you want to highlight.
- Double-tap a word to highlight it.
- Triple-tap a line of text to highlight it.

## Accessing command buttons

Command buttons such as New, OK, and Details appear at the bottom of the screen. In many cases, you can jump directly to these buttons instead of scrolling to them.

- From a list screen, such as the Contacts list or Memos list, press Right ▶ to jump to the first button.
- From a screen where you create or edit entries, such as Edit Contacts, press Center to jump to the first button.
- From a dialog box, such as Edit Categories, press Up ▲ or Down ▼ to scroll to the buttons.

## Selecting or activating items

After highlighting an item with the 5-way, you can select or activate it by pressing Center. You can also select an item by tapping it with the stylus.

## Selecting menu items

Many applications have menus to provide access to additional features. These menus are usually hidden from view, but they appear when you open the Menus. To get the most out of your Treo smartphone, it's a good idea to familiarize yourself with the additional features available through the various application menus.

1. Open the Menus to display an application's menus.
2. Press Right ▶ and Left ◀ to switch between menus.
3. Press Up ▲ and Down ▼ to highlight a menu item.
4. Press Center to select the menu item, or press Menu to close the menu and cancel your selection.

## Selecting options in a pick list

A range of options is often presented in a type of menu called a pick list, which can be identified by a downward-pointing arrow. Pick lists are different from the application menus described above.

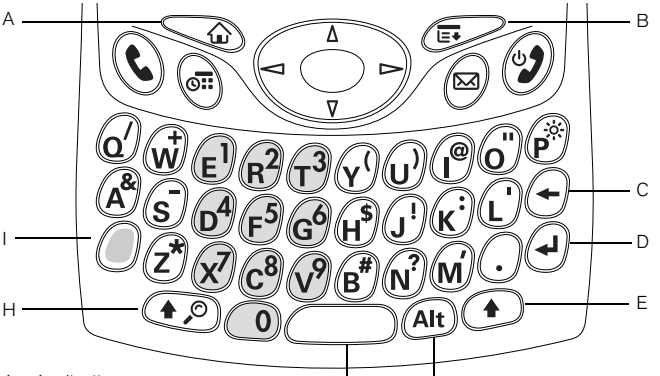
- Use the 5-way to highlight the pick list, and then press Center to display the items in the list. Press Up ▲ and Down ▼ to highlight the item you want, and then press Center to accept your selection.
- To exit the pick list and cancel your selection, press Left ◀ or Right ▶.
- Use your stylus to tap the pick list, and then tap the item you want from the list.

Most menu items have menu shortcuts listed in the menu. To use a menu shortcut, press Menu plus the shortcut letter. You don't have to see the menu item to use the menu shortcut.

# Using the keyboard

When using the keyboard, most people find it easiest to hold the Treo smartphone with two hands and use the tips of both thumbs to press the keys, as shown above.

The keyboard backlight may not be visible in bright sunlight.




A. Applications
B. Menu
C. Backspace
D. Return
E. Right Shift
F. Alt
G. Space
H. Shift/Find
I. Option

## Using the keyboard backlight

The Treo smartphone includes a keyboard backlight for low light conditions. The backlight activates automatically when the screen turns on. It turns off automatically when the screen turns off and when an active call lasts longer than a minute.

## Entering lowercase and uppercase letters

- To enter lowercase letters, press the desired keys.
- To enter an uppercase letter, press Shift/Find or Right Shift, and then enter a letter. You don't need to press and hold Shift while entering a letter.
- To turn Caps Lock on, press Shift/Find or Right Shift twice. To turn it off, press Shift/Find or Right Shift again. When Caps Lock is on, this symbol appears in the lower right: ⇪ .

## Entering numbers, punctuation, and symbols that appear above the letters on the keys

- Press Option, and then press the key with the desired character shown above the letter. You don't need to press and hold Option while pressing the second key.
- To turn Option Lock on, press Option twice. To turn it off, press Option again. When Option Lock is on, this symbol appears in the lower right: ⎇ .

## Entering other symbols and accented characters

1. Enter the character that corresponds to the symbol or accented character you want. See the table on the next page.
2. Press Alt.
3. Press Up ▲ or Down ▼ to highlight the desired character.
4. Press Center to insert the character.

In many applications, you can view a list of all the alternate characters. Open the Edit menu and select Keyboard Help.

Some application views automatically default to Option Lock, such as the Dial Pad View in the Phone application or the Calculator. In this case, you do not have to press and hold Option to enter numbers.

The alternate characters are grouped according to their similarity to the corresponding key. For example, the alternate characters available for the e key are é, è, ẽ, ê, and €.

## Symbols and accented characters

| Enter... | then press Alt (Alt) to select... | Enter... | then press Alt (Alt) to select... | Enter... | then press Alt (Alt) to select... |
|---|---|---|---|---|---|
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## Symbols and accented characters

| Enter... | then press Alt (Alt) to select... | Enter... | then press Alt (Alt) to select... | Enter... | then press Alt (Alt) to select... |
|---|---|---|---|---|---|
| f or F | *f* | x or X | x | ' | ‘ ’ < > ~ ` |
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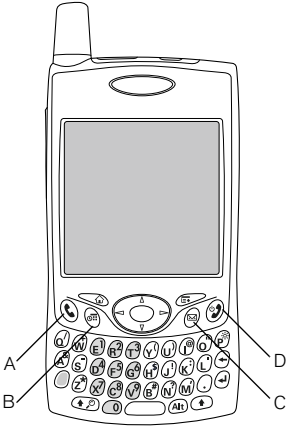
# Opening applications

There are three quick buttons on the front of the Treo 650 smartphone. The fourth button turns your phone on and off, wakes up the screen, and controls the Keyguard. Each quick button can be used to open two applications. To access a button's primary application, simply press the button. To access a button's secondary application, press Option, and then press the quick button.

You can also customize the buttons yourself; see "Setting Buttons Preferences" on page 147 for details.

Your wireless service provider may have customized the applications associated with each button.

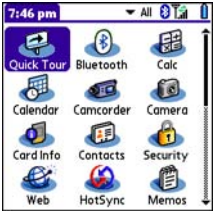



A Phone/Send
B. Calendar
C. Email
D. Power/End

| Button | Primary application | Secondary application |
|---|---|---|
| | Phone/Send | + Web Browser |
| | Calendar | + Memos |
| | VersaMail® | + Messaging |
| | Power/End (on/off) | + Keyguard |

You can access the Palm OS® applications through the Applications screen:

1. Press the Applications button .
2. Use the 5-way navigator to highlight the application you want to use.
3. Press Center to open the selected application.




Press Applications repeatedly to cycle through different categories of applications.

In the Applications, you can enter the first few letters of the application's name to highlight it. For example, if you enter "p," it highlights Phone; if you then enter "r," it highlights Prefs. If you pause and then enter "r," it highlights the first application that starts with "r."

# Setting up your computer

IMPORTANT: If you're upgrading from another Palm Powered device, follow the steps in "Upgrading from another Palm Powered™ device" on page 160 before you set up your computer for your new Treo smartphone.

If you want to synchronize your information with another desktop software program, contact the software developer to obtain a conduit if one is available.

Synchronization lets you enter information on your computer (using Palm® Desktop software or Microsoft Outlook for Windows) and then efficiently transfer that info to your Treo 650 smartphone. At the same time, changes you make on your smartphone are transferred to Palm Desktop or Microsoft Outlook. Even if you manage all your contacts on your smartphone, synchronization is a great way to back up your info.

Before you can synchronize, you need to install the desktop synchronization software on your computer. Even if you already own a Palm Powered™ device and have installed a previous version, you must install the software that came with your Treo smartphone on the palmOne Software Installation CD.

## System requirements

Your computer should meet the following minimum system profiles for Windows or Mac computers.

### Windows 2000 or XP (or later)

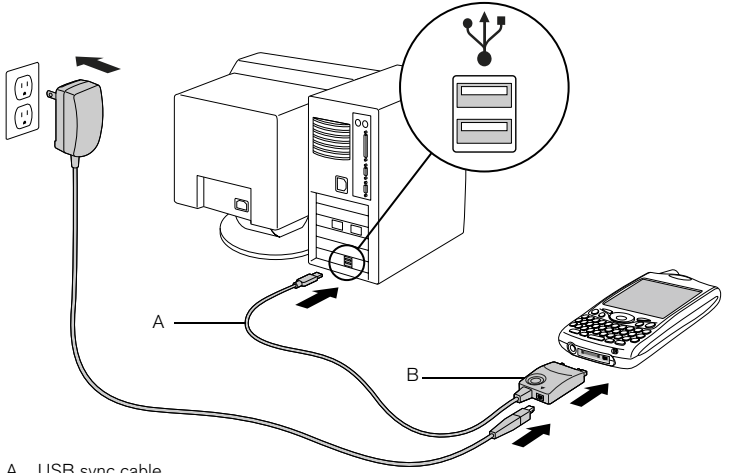
- 32MB of available memory (RAM)
- 170MB of free hard disk space
- CD drive
- Available USB port
- USB sync cable (included with your Treo 650 smartphone)

### Mac OS 10.2 or later

- 128MB of total memory (RAM)
- 190MB of free hard disk space
- CD drive
- USB port
- USB sync cable (included with your Treo 650 smartphone)

## Connecting your Treo smartphone to your computer

1. Plug the AC charger into a wall outlet. If necessary connect an adapter.
2. Plug the USB sync cable into an available USB port or a powered USB hub on your computer.
3. Connect the sync cable to the Multi-connector on the bottom of your Treo smartphone with the sync button facing up. Do not press the sync button until you are instructed to do so.
4. Connect the charger cable to the Multi-connector on the USB sync cable.




A. USB sync cable
B. Sync button

For best performance, plug your sync cable directly into a USB port on your computer. If you use a USB hub, make sure it is a powered hub.

If you are installing on a computer at work, make sure your company allows you to install new software. Contact your company's IT department for help.

## Installing the desktop synchronization software on your computer

Your computer needs to have all its resources available to install the desktop synchronization software. Follow these guidelines for a successful installation:

1. Exit any applications that are currently running on your computer, including those running in the background.
2. Insert the palmOne Software Installation CD into the CD drive on your computer. If you are installing on a Mac, double-click the CD icon on the desktop, and then double-click the palmOneSoftware.pkg icon.
3. Follow the onscreen instructions of the installation program. Please note these important points about the installation process:
   - If a language selection screen appears, click the same language you use on your Treo smartphone.
   - During the installation process, you will be prompted to synchronize for the first time. See the next section for details.

# Synchronizing contacts and other information

Synchronizing means that information that is entered or updated in one place (your phone or your computer) is automatically updated in the other—no need to enter information twice. We strongly recommend that you synchronize your Treo smartphone with your computer or corporate server frequently to keep your information up-to-date (and backed up) in both locations.

## Synchronizing with the Palm Desktop software

Before you can synchronize your contacts and other personal information, you must install the Palm Desktop software from the CD that came with your Treo smartphone. See "Installing the desktop synchronization software on your computer" on page 30 for instructions.

If you use the default settings, information from all the following applications is transferred each time you synchronize your phone with your computer:

If you choose to synchronize your phone with Outlook, information from Contacts, Calendar, Tasks, and Memos is updated in your computer. You can also set up the VersaMail® application to synchronize with Outlook. Other info, such as photos, is updated in Palm Desktop software.

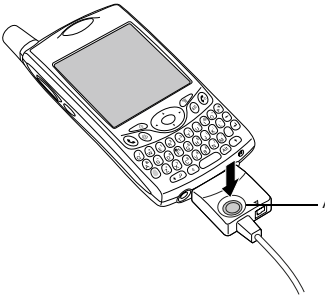
1. Connect your Treo 650 smartphone to your computer, as described in "Connecting your Treo smartphone to your computer" on page 29.
2. Press the sync button on the sync cable.

We strongly recommend that you install the synchronization software soon after you start using your smartphone, and that you synchronize your Treo smartphone and computer frequently to keep your information up-to-date (and backed up) in both locations.

If you installed Palm Desktop software, the HotSync Manager icon should appear in the lower-right corner of your computer screen.

Your contacts, tasks, and memos sync with Palm Desktop software or Microsoft Outlook, depending on which desktop application you use.

You can also synchronize your information with desktop applications and corporate enterprise servers. See "Sending and receiving email" on page 65 for more information.




A. Sync button

3. Wait for a message indicating that the process is complete.
   - If nothing happens, make sure that you installed the desktop synchronization software from the palmOne Software Installation CD that came with your Treo smartphone, and that it is running on your computer.
   - If you want to synchronize information with applications other than Palm Desktop or Microsoft Outlook, you need to purchase additional third-party conduit software.
   - If you have any problems synchronizing, see "Synchronization" on page 176 for troubleshooting suggestions.

# Battery life

Battery life depends on usage. When used as a phone, your Treo smartphone battery provides up to 5 hours of talk time or up to 300 hours of standby time.

## Maximizing battery life

You can increase the life of your battery by following a few easy guidelines. Remember that battery life depends on how you use your smartphone.

- Charge your smartphone whenever you're at your desk, or charge it overnight. The Li-Ion battery in your smartphone has a much longer useful life when it is topped off frequently, versus charging it after it is fully drained.
- The wireless features (phone, email, SMS, and web) of your smartphone generally consume more power than its organizer features. However, if you spend a lot of time using the camera (if included), games, media players, eBooks, or other Palm OS applications, keep an eye on the battery icon and charge when necessary.
- If you don't plan to use the wireless features on your smartphone for a while, you may want to turn off your phone (see "Turning your phone on and off" on page 14). You can let all calls be picked up by voicemail.
- As with any mobile phone, if you are in an area with no wireless coverage, your Treo smartphone searches for a signal, which consumes power. If you cannot move to an area of better coverage, temporarily turn off your phone.
- Turn down the screen brightness (see "Adjusting the brightness" on page 143).
- Decrease the Auto-off setting in Power Preferences (see "Power Preferences" on page 150). This turns off your screen automatically after a shorter period of inactivity.
- Turn off the Bluetooth® wireless technology if it is not being used. See "Connecting to devices with Bluetooth® wireless technology."



IMPORTANT: You must charge your smartphone fully before using it the first time. Wait until the indicator light turns solid green, which may take up to 4 hours.

If the battery drains to the point where your smartphone doesn't turn on, the device stores your info safely until you recharge the battery. To avoid draining the battery, charge and synchronize your smartphone every day, especially if you use your phone often.

If the battery is fully drained, it may take a few moments for the indicator light to turn on while charging.

# Where to learn more

To open the Quick Tour, go to Applications and select Quick Tour.

## For a quick introduction

- Quick Tour: The Quick Tour teaches you how to use many features of your Treo smartphone. It is already installed on your smartphone, and you can open it any time.

## While using your Treo smartphone

- Tips: Many of the built-in applications include helpful tips for getting the most out of your smartphone. To view these tips, open an application, open the menus, select Options, and then select Tips.
- Information: Many screens have a Tips icon in the upper-right corner. Select the Tips icon to learn about the tasks you can perform in that dialog box.
- Online support from palmOne: For up-to-date downloads, troubleshooting, and support information, check out www.palmOne.com/us/support.

## If you need more information

- Books: Many books on Palm Powered™ devices, such as Now You Know Treo, are available in local or online book retailers (look in the computers section), or visit www.palmOne.com/us/support.
- Online forums: Consult online Treo smartphone user discussion groups to swap information and learn about topics you may find nowhere else. Visit www.palmOne.com/us/support for details.
- Customer service from your wireless service provider: For questions about your mobile account or features available on the network, contact your wireless service provider.

# first week:
# using phone, web, and messaging

# Phone overview

If you have multiple alerts, the Alert screen displays all your pending alerts. Select an item's description to jump to that item, or check the box to clear that item. To view all your pending alerts from any screen on your phone, press and hold Center.

The Phone application lets you make and receive calls and store favorites for contacting people and opening applications. Be sure you know how to turn on your phone before reading this section (see "Turning your phone on and off" on page 14).

## Accessing the Phone application

Press the Phone/Send button.

You can monitor the status of several items using icons at the top of the Main View of the Phone application:

| | |
|---|---|
| Network name | Displays the name of your wireless service provider when your phone is on and you are in a coverage area. If you are outside a coverage area, No service, Roaming or SOS Only appears instead. When you turn off your phone, Phone Off appears. |
| | Appears with a red slash when location is on and without the slash when location is off. |
| | Appears when call forwarding is active. |

| | |
|---|---|
| T | Appears when TTY/TDD Mode is active. |
| R | Appears when roaming is active. |
| | Appears in gray when Bluetooth® wireless technology is off. Appears in blue when Bluetooth wireless technology is on. Appears in reverse blue when your phone is communicating with other devices using Bluetooth wireless technology. You can also tap this icon to quickly turn Bluetooth wireless technology on and off. |
| | Replaces the Bluetooth icon when your phone is connected to a headset that is enabled with Bluetooth wireless technology. |
| | Indicates Wireless mode is on but your phone is not connected to any data network. The bars display the signal strength. The stronger the signal, the more bars appear. If you are outside a coverage area, no bars appear. |
| | Indicates your phone is connected to a data network. When the arrows are gray, you are in standby mode and you can receive calls. When the arrows are green, a data session is active (for example, when you are browsing the web) and you cannot receive calls. |
| | Displays the battery charge status. When the battery drains to 20% of its capacity, the icon changes from blue to red. At 10% of its capacity, you begin to receive warning messages, and at 5% of its capacity, the phone beeps and the icon changes from red to clear. |
| | Appears when your battery is charging. The lightening bolt turns from red to green when the battery is fully charged and your phone remains connected to the AC charger. |
| | Appears when your battery is fully charged and your phone is no longer connected to the AC charger. |

To quickly access the Bluetooth Preferences panel, tap the Bluetooth icon.

To display the remaining battery power, tap the battery icons at the top of the screen.

To display the current event from the Calendar application in the Main View of the Phone application, open the Options menu and select General Preferences. Check the Show Calendar event box. You can then select this event to jump to the Calendar application.

| | |
|---|---|
| | Indicates the number of unread text messages. |
| | Appears when you have new voicemail messages. You can select this icon to retrieve your messages. |
| | Displays the current (or next) event from the Calendar application. If you have an event conflict during the current time period, a red bar appears. |

# Dialing calls

Your Treo™ 650 smartphone offers several options for making phone calls. As you get familiar with your phone, you'll discover which method you prefer.

## Dialing using the onscreen Dial Pad

1. Press Phone/Send.
2. Tap the onscreen Dial Pad to enter the number.
3. Press Phone/Send to dial.

## Dialing with the keyboard

1. Press Phone/Send.
2. Using the numbered keys on the keyboard, start entering a phone number. You do not need to press Option to access the numbers on the keyboard.
3. Press Phone/Send to dial.

## Dialing by contact name

Before you can dial a call by contact name, you must create some contacts (see "Adding a contact" on page 98) or import them by synchronizing (see "Synchronizing contacts and other information" on page 31).

If you changed the wallpaper in the Main View of the Phone application (see "Selecting wallpaper for the Phone application" on page 141), you can still access the Dial Pad. From the Main View of the Phone application, press Phone/Send, and then select Dial Pad.

You can paste numbers directly into the Dial Pad View. Copy a number from another application, and then switch to Dial Pad View. Open the Edit menu and select Paste. Press Phone/Send to dial.

If you prefer to dial by contact from the Main View, open the Options menu and select General Preferences. Select the second pick list and select the Typing starts Contacts search option.

To see more information for a person in your Contacts list, highlight the name and press Center to view the contact's address, company, and other details.

To start another search, press Backspace to delete letters you've entered. Or select Cancel to return to the Main View.

To view more favorite buttons, highlight the bottom row of favorites, and then press Down.

1. Press Phone/Send .
2. Select the Contacts favorite button.
3. Using the keyboard, begin entering one of the following for the contact you want to call:
   - First initial and last name
   - First name
   - Last name
4. Select the number you want to dial.
5. Press Phone/Send  to dial.

## Dialing with a favorite button

Before you can use favorite buttons, you must create some favorites entries. See "Defining favorite buttons" on page 51.

1. Press Phone/Send .
2. Use the 5-way to access Favorites.
3. Highlight the desired button.
4. Press Center to dial the selected button.

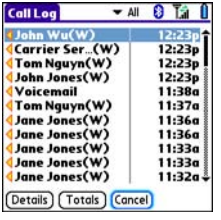
## Dialing from a web page or message

Your Treo smartphone recognizes most phone numbers that appear in web pages or in text, email, or messages.

1. Use the 5-way to highlight the phone number in the web page or text message you want to dial.
2. Press Center to open the Dial dialog box.
3. Press Phone/Send  to dial.

## Redialing a recently called number

- To dial the last number: From the Main View in the Phone application, press and hold Phone/Send to dial the last number you called.
- To select from your most recently dialed numbers: From the Main View in the Phone application, press Phone/Send, select the number you want to call, and then press Phone/Send again to dial.
- To select from a chronological list of calls: Select the Call Log favorite. You can also access the Call Log by pressing Phone/Send, and then selecting Call Log from the recent call list.




If you can't highlight and dial a phone number on a web page or in a text message using the 5-way or stylus, it means that your Treo smartphone does not recognize it as a phone number.

# Receiving calls

To receive calls, your phone must be on. This is different from having just the screen turned on (see "Turning your phone on and off" on page 14).

## Answering a Call

- Press Phone/Send .
- Using the 5-way navigator, select the onscreen Answer button.
- If the headset is attached, press the headset button.

## Sending a Call to Voicemail

- Press Power/End .
- Using the 5-way, select the onscreen Ignore button.

## Silencing your phone while it's ringing

- Press the Volume button or any key on your phone except Phone/Send, Power/End, or the 5-way.
- To immediately silence all system sounds including the ringer, slide the ringer switch to Sound Mode Off .

When you silence the ringer, you can either answer the call or let it ring through to voicemail.

See a photo of the person calling you! Learn how to assign a caller ID photo in "Assigning a caller ID photo" on page 140.

## Answering a call while playing music

If music is playing, and a call arrives, the phone rings softly. The audio continues playing, but you won't hear it during your call. To pause the music, press the Side button. To answer the call, do one of the following:

- Using the 5-way, select the onscreen Answer button.
- Press the headset button (if a headset is attached).

# Using voicemail

If a Voicemail icon appears in the title bar at the top of the screen, you can tap this icon to retrieve your voicemail.

If you have multiple alerts, the Alert screen displays all your pending alerts. Select an item's description to jump to that item, or check the box to clear that item. To view all your pending alerts from any screen on your phone, press and hold Center.

## Setting up voicemail

1. Make sure your phone is turned on (see "Turning your phone on and off" on page 14).
2. Press Phone/Send .
3. Use the 5-way navigator to access Favorites (see "Dialing with a favorite button" on page 40).
4. Select the Voicemail favorite button.
5. Follow the system prompts to create your password and record your greeting.

Your Treo smartphone connects to your wireless service provider's automated voicemail system. If your phone is unable to connect, contact your wireless service provider for assistance.

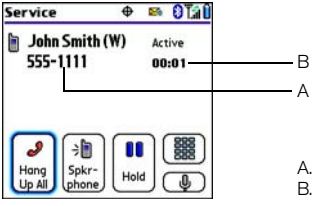
## Retrieving voicemail messages

When you have a new voicemail message, you are notified with an Alert screen.

1. Press Phone/Send .
2. From the Phone application Main View, Dial Pad, or Favorites, press and hold 1 on the keyboard. Your phone dials your wireless service provider's voicemail system.
3. Enter your voicemail password using the keyboard, or select Extra Digits if you defined this option (see "Editing or deleting an existing favorite button" on page 53 for information on editing favorite buttons). Remember, you do not need to press Option to enter numbers, *, or # while on an active call.

# Managing active calls

When you make or receive a call, the Active Call View appears. Use the 5-way navigator to access the onscreen buttons in this view.




A. Caller's (or called) name and number
B. Current duration of call

| | |
|---|---|
| Hang Up All | Ends the call immediately. You can also press the headset button (if the headset is attached). |
| Spkr-phone | Switches to the personal speakerphone so you can use other features, such as checking your calendar, during a call. |
| Cancel Spkr. | Returns to Handset Mode when the speakerphone feature is active. |
| | Switches from a headset with Bluetooth wireless technology to the built-in earpiece. This button replaces the Spkr-phone button when a headset with Bluetooth wireless technology is attached. |

Press Phone/Send repeatedly to toggle between the Active call view and the Main View of the Phone application.

To avoid accidentally selecting onscreen buttons while you're holding the phone up to your ear to speak, you can disable the screen's touch-sensitive feature during active calls (see "Using Auto-Keyguard and touchscreen lockout" on page 152).

When a call lasts longer than one minute, the screen turns off. Press any key except Power/End to wake up the screen.

When a call lasts longer than one minute, the screen turns off. Press any key except Power/End to wake up the screen, and then press Power/End to hang up the call. Be careful not to press Power/End to wake up the screen because this will accidentally end the call.

| | |
|---|---|
| | Places the current call on hold. |
| | Lets you place another call while the first call is on hold. This button replaces the Hold button when a call is on hold. |
| | Opens the Dial Pad so you can dial additional numbers. |
| | Dials any extra digits (such as a password or extension) that you assigned to a Speed Dial favorite button. This button replaces the Dial Pad button during outbound calls to numbers that include predefined extra digits. See “Defining favorite buttons” on page 51 for information on creating a Speed Dial favorite button. |
| | Mutes the microphone so that you cannot be heard. |

## Ending a call

To end a call, do one of the following:

- Press Power/End.
- Select Hang Up.
- Press the headset button (if the headset is attached).

## Returning to an active call from another application

You can use many other applications on your Treo smartphone while holding a phone conversation, including the organizer and SMS Messaging features. You cannot browse the web or send and receive email while on an active call.

From any application, press Phone/Send to return to the Active Call View.

## Saving phone numbers

After you end an incoming call from a number (with caller ID) that is not in your Contacts list, you are prompted to add the number to your Contacts list.

- To add the number, select Yes.
- To decline adding the number, select No.
- To permanently disable the Add New Contact prompt, check the Never ask me to add new Contacts box when the prompt appears.

If you don't add a number right away, follow these steps to add it later:

1. In the Call Log (see "Redialing a recently called number" on page 41), highlight the number you want to save.
2. Select Add Contact.
3. Enter the information for the entry.
4. Select Done.

# More ways to manage calls

You can use most of the other applications on your smartphone while holding a phone conversation, including text messaging and organizer features such as Calendar and Memos. To return to an active call from another application, press Phone/Send. You cannot make a data connection or use the Internet while on an active call. This means that you also cannot send and receive email or messages while on an active call.

Your Treo smartphone offers many advanced telephone features, including call waiting, conference calling, and call forwarding.

## Making a second call

You can make a second call while your first call is still active.

1. After dialing the first number, use the 5-way navigator to select Hold.
2. Use the 5-way to select Add Call.
3. Dial the second number using Favorites, Contacts, or Dial Pad (see "Dialing calls" on page 39).

When two calls are active, the Active Call View includes two status lines, each representing one of the calls.

## Answering a second call (call waiting)

When you are on an active call, you can receive a second call. When the second call comes in, the Call Waiting dialog box appears, giving you the following options for handling the second call:

- To place the current call on hold and answer the new call, use the 5-way navigator to select Answer.
- To send the new call to voicemail, use the 5-way to select Ignore.
- To hang up the current call and answer the new call, press Power/End.

## Making a conference call

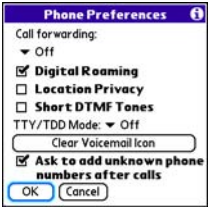
You can join a total of two other calls in a conference session, provided that your network and service plan includes conferencing. Please contact your wireless service provider or more information. Additional charges may apply and minutes in your mobile account may be deducted for each active call you place.

1. While the first call is active, place or answer a second call (see “Making a second call” on page 48).
2. Use the 5-way to select Conf. This joins the two active calls in a conference session.
3. To end the conference, use the 5-way to select Hang Up and end all the calls. To continue a conversation with one of the parties, select Extract, and then select the party you want to keep on the line.

## Forwarding all calls

Call Forwarding lets you forward your calls to another number. You can still make calls from your phone while this is activated. Please check with your wireless service provider about availability and pricing of forwarded calls, as additional charges may apply.

1. Press Phone/Send.
2. Open the menus.
3. Select Options, and then select Phone Preferences.
4. Select the Call Forwarding pick list.
   - If the forwarding number appears in the pick list, select the number.
   - If the forwarding number does not appear in the pick list, select Edit Numbers, and then select New. Enter a forwarding number, including the area code or country code if it is different from your mobile phone number. Select OK.




After you set your call forwarding options, call your smartphone to confirm that call forwarding is active.

Want to see how long you spent on a particular call? From the Call Log, select the call, then select Details. Keep in mind that your billing statement may vary slightly from the information you see onscreen. Usage is charged based on your calling plan, and calling plans vary.

5. Select OK.
6. Call your phone from another number to confirm that call forwarding is active.

## Viewing minutes usage

1. Select the Call Log favorite button.
2. Open the menus .
3. Select Totals from the Record menu.
4. (Optional) To reset the counters to zero, select Reset Counters.
5. Select Done.

# Defining favorite buttons

Your Treo smartphone provides approximately 70 programmable favorite buttons for quick access to the following common tasks:

- Dialing a phone number (speed dial)
- Accessing your Call Log
- Accessing the onscreen Dial Pad
- Opening an application
- Accessing a web page
- Addressing a text or email message
- Accessing voicemail (preset on your phone)

Your wireless service provider may include special favorite buttons on your Treo smartphone that are customized for their services.

When you are in the Main, Favorites, or Dial Pad View, you can press and hold a Quick Key to open the favorite associated with that key. Quick Keys are optional and can be letters or numbers, but you can't use both the letter and number for the same key. For example, the voicemail Quick Key is 1. The letter equivalent for that key is E, so you cannot assign E as a Quick Key to another favorite button.

To see the next Favorites page, press Right repeatedly. To see the previous page, press Left repeatedly. If you're upgrading from a previous Treo smartphone, your favorites are transferred along with your other info. However, you may need to rearrange the order in which your favorites appear by opening the Edit menu, and then selecting Edit Favorites Pages.

If there are no blank buttons on the current Favorites page, press Down ▼ or Right ▶ to scroll through the other pages.

To see all the contact numbers for the selected person or business, highlight the favorite button and press Space.

To add a special ringtone and extra digits, select More.

## Creating a speed dial favorite button

1. Press Phone/Send .
2. Use the 5-way navigator to access Favorites
3. Select a blank button.
4. Select the Types pick list and select Speed Dial.
5. Enter a label for the favorite:
   - If the entry is for an existing contact, select Lookup. Start entering the last name of the contact and select the contact when it appears in the lookup list.
   - If the entry is for a new contact, enter the label, press Down ▼, and enter the number.

6. (Optional) Enter a Quick Key. When you are in the Phone application, you can press and hold the Quick Key to instantly open the favorite.
7. (Optional) Select the Ringtone pick list and select a special ringtone for incoming calls from that contact.
8. (Optional) Select More:
   - Extra Digits: Lets you define additional digits to dial, such as a password or extension.
   - Dial Extra Digits Automatically: Dials predefined Extra Digits immediately after dialing the phone number, when checked.
9. Select OK.

## Creating other types of favorite buttons

1. Press Phone/Send .
2. Use the 5-way to access Favorites.
3. Select a blank button.
4. Select the Types pick list and select Call Log, Dial Pad, Application, Message, Email, or Web Link.
5. Enter a label for the favorite and enter any other necessary information on the screen.
6. (Optional) Enter a Quick Key that opens the favorite when pressed and held.
7. Select OK.

## Editing or deleting an existing favorite button

1. Press Phone/Send .
2. Use the 5-way to access Favorites.
3. Highlight the favorite button you want to edit or delete.
4. Open the menus .
5. Select Edit, and then select Edit Favorites Button.
6. Make the desired changes. For example, you can add a Quick Key shortcut to any favorite. When you press and hold the assigned key from within the Phone application, the favorite opens.
7. To delete the entry, select Delete.
8. Select OK.

You can also organize your buttons on different Favorites pages. Open the Edit menu and select Edit Favorites Pages.

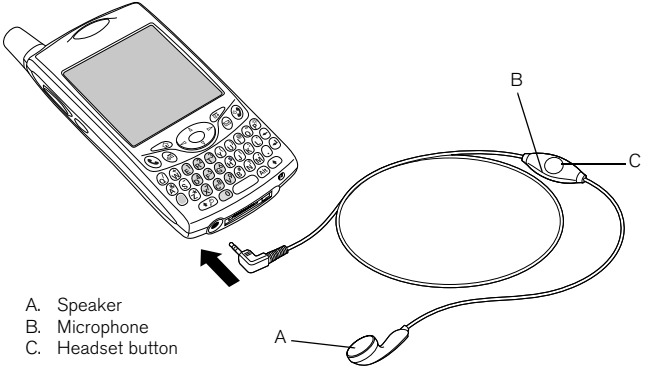
When creating a message or email favorite, you can enter multiple addresses; simply separate each address with a comma. This is an easy way to send messages to a group of people.

# Using a phone headset

If you're using a headset with Bluetooth wireless technology and you want to return to the handset or a wired headset during a call, select Cancel Bluetooth on the Active Call view.

If you have both a compatible headset and car kit with Bluetooth wireless technology, whichever one you use to place or receive the call becomes the active device.

You can connect a phone headset for hands-free operation. If you need to use your phone while driving and this is permitted in your area, we recommend using a phone headset or a hands-free car kit (sold separately).




A. Speaker
B. Microphone
C. Headset button

You can press the headset button to perform any of the following tasks:

- Answer an incoming call
- Answer a call waiting call
- Switch between two active calls
- Hang up a single call

## Headset specifications

Your Treo smartphone uses a 2.5mm, 3-pin headset connector. Ask the third-party headset manufacturer if the product is compatible with Treo smartphones. If you hear a headset buzz or poor microphone performance, your headset may be incompatible.

Your Treo™ 650 smartphone is also compatible with headsets and car kits enabled with Bluetooth® 1.1 wireless technology. Most of the currently available headsets and car kits with Bluetooth wireless technology support both Bluetooth 1.1 and 1.2 wireless technology. Check the specifications for your headset or car kit to confirm compatibility. Please note, however, that you cannot use a headset with Bluetooth wireless technology to listen to MP3 files.

In addition to the headset that came with your Treo smartphone, you can use other third-party headsets.

To hear stereo through the jack (such as music), you should use a stereo adapter or other accessory. Visit www.palmOne.com/us/support for more information on audio accessories and for the latest compatibility info.

The headset designed for Treo 180/270/300 is not compatible with Treo 650.

# Connecting to devices with Bluetooth® wireless technology

Go to www.palmOne.com/us/support/bluetooth/treo650_bluetooth_compatibility.html for a list of compatible devices.

If you're using a hands-free device with Bluetooth wireless technology and it is within range, your smartphone automatically routes all calls to the hands-free device instead of to the handset.

When a call comes in, your smartphone rings and the car kit or headset beeps. Even if you pick up the call, the call goes to the headset or car kit.

With your phone's built-in Bluetooth wireless technology, you can connect to a number of devices with Bluetooth wireless technology such as a headset, hands-free car kit, printer, or GPS receiver, as well as to other phones and handhelds with Bluetooth wireless technology. If your computer is enabled with Bluetooth wireless technology, you can synchronize wirelessly, and even use your phone as a wireless modem for your computer.

Once you set up a connection with a device with Bluetooth wireless technology, you can communicate with that device whenever it is within range. Bluetooth range is up to 30 feet dependent upon environmental conditions; including obstacles, radio interference from nearby electronic equipment, and other factors.

## Connecting to a headset or car kit with Bluetooth wireless technology

1. Go to Applications and select Bluetooth .
2. Select On.
3. Enter a device name for your phone. This is the name other devices with Bluetooth wireless technology see when they connect to your phone.
4. Select the Discoverable pick list and select one of the following:
   - Yes: Nearby devices with Bluetooth wireless technology can find your phone and request a connection. You can accept or refuse the connection request.
   - No: Only devices with which you've already formed a trusted pair can find your phone. New devices cannot request a connection.

5. Select Setup Devices.
6. Select Hands-free Setup.
7. Follow the onscreen instructions to create a trusted pair with the specific hands-free device. In some cases you may need to perform setup steps on the other device before you can complete this step. Check the documentation for your hands-free device for specific setup instructions.
8. After you finish setting up the device, select Done to return to the Applications View.

You are now ready to use your Treo smartphone with your hands-free device with Bluetooth wireless technology.

## Creating trusted pairs

You can configure accessories with Bluetooth wireless technology to be trusted devices of your Treo smartphone. When communicating with trusted devices, your Treo smartphone can skip the discovery process to create a secure link.

For example, when you configured a headset as described in "Connecting to devices with Bluetooth® wireless technology" on page 56, a trusted pair was created automatically. You can also create trusted pairs with other devices, such as a friend's handheld.

Your Treo smartphone does not support Bluetooth wireless connections to stereo headsets, or keyboards.

The Bluetooth setting must be set to On for your phone to be discoverable.

Be sure to close the Bluetooth application when you're done setting up devices and creating trusted pairs.

To set up advanced features, such as auto-answer and voice tags, go to Applications and select Prefs. Select Hands-free, and then configure the settings. Note that your hands-free device with Bluetooth wireless technology must support voice tags to use that feature.

1. Go to Applications and select Bluetooth .
2. Select Setup Devices.
3. Select Trusted Devices.
4. Select Add Device. The Discovery icon appears to indicate that the discovery process is active.
5. If the device you want to add does not appear on the Discovery Results screen, check to make sure that it is discoverable. Check the documentation for the device to learn how to make it discoverable. Once the other device is discoverable, select Find More on your smartphone to search again.
6. Enter the same passkey on your smartphone and the other device and select OK. IMPORTANT: Some devices with Bluetooth wireless technology have a built-in passkey; others let you choose the passkey. In either case, you must use the same passkey on both the other device and your phone. See the documentation for the other device with Bluetooth wireless technology for additional information.
7. Select Done.

## Sending information over a Bluetooth wireless connection

You can send an individual entry or a category. When you send a category, the items within the category appear as unfiled items on the receiving device.

1. Open an application.
2. Select the entry or category you want to send.
3. Open the menus .
4. Select Send on the leftmost menu.
5. Select Bluetooth, and then select OK.
6. Select the receiving device on the Discovery Results screen, and then select OK.

## Sending an application over a Bluetooth wireless connection

1. Go to Applications .
2. Open the menus .
3. Select Send on the App menu.
4. Select the Send From pick list and select whether the application you want to send is located on your Treo smartphone or on an expansion card.
5. Select the application you want to transfer. Applications with a lock cannot be transferred.
6. Select Send.
7. Select Bluetooth, and then select OK.
8. Select the receiving device on the Discovery Results screen, and then select OK.

## Receiving information over a Bluetooth wireless connection

1. Go to Applications and select Bluetooth .
2. Select Bluetooth On.
3. If you already have a trusted pair with the other device, your Treo smartphone is ready to receive the info. If you don't have a trusted pair with the other device, select the Discoverable pick list and select Yes.
4. Exit the Bluetooth application by pressing Applications .

Check your battery level before establishing a Bluetooth wireless connection. If the battery level is low, you can't make a Bluetooth wireless connection.

5. Use the other device to discover your smartphone and send information to it:
   - See the device documentation to learn how to discover and send information over a Bluetooth wireless connection.
   - Your smartphone will beep to warn you of the incoming connection, and then prompt you to accept the new information. Select a category or expansion card to file the item. If you don't select a category, the item will go in the Unfiled category.
6. Press Up ▲ to receive the information over the Bluetooth wireless connection, or press Down ▼ to refuse it.

# Using dial-up networking

If your computer is enabled with Bluetooth wireless technology, you can use your smartphone as a wireless modem to access the Internet from your computer. Dial-up networking (DUN) is the feature that converts your smartphone into a wireless modem. To configure DUN, complete the following procedures:

- “Creating a trusted pair between your smartphone and your computer” on page 61
- “Setting up your computer for a DUN connection” on page 62
- “Enabling DUN on your smartphone” on page 63
- “Accessing the Internet from your computer” on page 63

## Creating a trusted pair between your smartphone and your computer

After creating the trusted pair, you can use your smartphone as a modem any time it is within range of your computer, bypassing the discovery and authentication process. You need to do this only once.

1. Make sure that your computer’s Bluetooth setting is on and that your computer is discoverable. Check the documentation that came with your computer to find and change these settings.
2. On your smartphone, go to Applications and select Bluetooth .
3. Select On if it is not selected, and then select Setup Devices.

If your computer is not enabled with Bluetooth wireless technology, you may be able to purchase a wireless Bluetooth adapter accessory for your computer.

To use DUN, you must have a data services plan and access point name (APN) information. Check with your wireless service provider to obtain your data services username, password, and APN information.

Your wireless service provider may provide customized software programs that walk you through the DUN setup process. Check with your wireless service provider to see if such a program is available.

4. Select Trusted Devices.

5. Select Add Device. The discovery icon appears, indicating that the discovery process is active.
6. Select your computer from the Trusted Devices list, and then select OK.
7. Enter a passkey on the Bluetooth Security screen, and then select OK. The passkey can be any number you choose. We recommend that you use at least four digits in your passkey.
8. Enter the same passkey number on your computer when prompted.
9. Select Done, and then select Done again to return to the Bluetooth screen.

## Setting up your computer for a DUN connection

Dial-up networking must be enabled or installed on your computer. Follow the instructions from the manufacturer of your Bluetooth adapter to enable DUN.

## Enabling DUN on your smartphone

You must enable DUN on your smartphone each time you wish to use your phone as a wireless modem.

1. Go to Applications and select Bluetooth .
2. Select the Dial-up Networking pick list, and then select On. When DUN is successfully enabled, the DUN icon appears.
3. Select OK on the warning screen that appears. This screen reminds you to disable DUN when you want to stop the Internet session on your computer.

## Accessing the Internet from your computer

The steps for accessing the Internet on your computer may vary depending on your operating system and how Bluetooth wireless technology is set up on your computer—for example, if it is built in versus if you are using a wireless Bluetooth adapter. If the following procedure does not work with your computer, check your computer's documentation for how to set up Bluetooth technology to access the Internet using a DUN connection.

Before you begin, verify that DUN is enabled on both your computer and your smartphone.

1. Open the Bluetooth panel on your computer and look for the option for paired devices. Check your computer's documentation for how to bring up this screen and the name of the paired devices option.
2. Double-click the icon or option representing your smartphone. Your computer connects to your smartphone and shows that DUN services are available.
3. Double-click the DUN icon.

When DUN is on, you cannot pair with another device or discover another device. You can also not send or receive information wirelessly directly from your smartphone, browse the web, or send or receive email messages. You can use all the other features of your smartphone, including the Phone application.

Keeping DUN enabled drains your smartphone's battery quickly. Be sure to turn off DUN on your smartphone when your Internet session is finished.

You may be asked if you want to remember this dial text for this connection. We recommend that you choose to remember the dial text to avoid errors and the inconvenience of entering it for every session.

You may need to use a virtual private network (VPN) to access corporate email. Check with your system administrator for more information.

4. Leave the username and password fields blank. You do not need to enter a separate username and password.
5. Enter the following in the Dial field: #777
6. Click Dial. Once the connection is successfully established, you can browse the Internet on your computer or download your email.

To verify that you are connected, look for a network connection icon in the task bar at the bottom of your computer screen. To check the status of the connection, right-click the Bluetooth network icon.

## Terminating an internet session

To terminate an Internet session, first disconnect from DUN on your computer, and then turn DUN off on your smartphone.

1. On your computer, right-click the icon or option representing your smartphone, and then click Disconnect.
2. On your smartphone, go to Applications and select Bluetooth .
3. Select the Dial-up Networking pick list, and then select Off. When the Bluetooth status icon reappears at the top of the screen, you have successfully switched off DUN.

# Sending and receiving email

If you've activated data services on your Treo 650 smartphone, you're ready to set up the VersaMail® application on your phone. You can use the VersaMail account with your your wireless service provider email account, as well as with other email accounts such as an Earthlink or a BellSouth email account or any other POP3 or IMAP email account. You may also be able use VersaMail with a corporate account.

Before you can use VersaMail with a given email account, you need to set up the account in VersaMail. If you have multiple email accounts, you must set up a VersaMail account for each one. You have three setup options:

- On a Windows computer, if the email account is already set up on your computer—for example, if you use Outlook Express on your computer to access your Earthlink account—you can transfer the account settings to your phone in just a few steps.
- On a Windows computer, if this is a new account, you can quickly set up the account on your computer and synchronize the information on your phone.
- For either a new or an existing account, you can set up the account directly on your phone.

If you are setting up a Microsoft Exchange ActiveSync® account, see "Working with Microsoft Exchange ActiveSync" on page 77 for more information, and see the VersaMail User Guide on the Software Installation CD for setup instructions.



VersaMail is not an email provider. It works with an account from a provider—yours or a corporate account--to transfer messages to your phone.

## Transferring settings from an existing account (Windows only)

1. Select the option to set up your email software when prompted on the final screen of the software CD installation. From the Start menu, select Programs, select palmOne, and then select VersaMail Setup.
2. Select your username from the first drop-down list, and then select the option to create a new VersaMail email account. Click Next.

If you are transferring existing account settings, your username and email address automatically appear on this screen.

3. Select the option to synchronize with an existing email account detected on your PC, and then select the account from the list. Click Next.
4. Enter a descriptive account name or use the one shown. Enter your email account password. Click Next.

5. Select whether to synchronize account information with information on your phone or to set up another account, and then click Next.
6. When you are finished setting up all accounts, click Finish.
7. Synchronize to transfer all account information to your phone.

## Setting up an account on your computer: Common providers (Windows only)

The settings for many common providers are already included in VersaMail. If you have an account with one of these providers, follow the steps in this section. If your email provider is not listed in the Mail Service list, see “Setting up an account on your computer: Other providers (Windows only)” on page 67 for account setup instructions.

1. Select the option to set up your email software when prompted on the final screen of software CD installation. From the Start menu, select Programs, select palmOne, and then select VersaMail Setup.
2. Select your username from the first drop-down list, and then select the option to create a new VersaMail email account. Click Next.
3. Select the option to synchronize your VersaMail account with a mail service from this list, and then select your mail service from the list. Click Next.
4. In the first field, enter a descriptive account name or use the one shown. In the next two fields, enter the username you use to access your email and your email account password. Enter your email address in the last field. Click Next.
5. Select whether to synchronize the new account information from your desktop computer to your phone, or to set up another account, and then click Next.
6. When finished setting up all accounts, click Finish.
7. Synchronize to transfer all account information to your phone.

## Setting up an account on your computer: Other providers (Windows only)

1. Select the option to set up your email software when prompted on the final screen of software CD installation. Or from the Start menu, select Programs, select palmOne, and select VersaMail Setup.
2. Select your username from the first drop-down list, and then select the option to create a new VersaMail email account. Click Next.
3. Select the option to synchronize your Versamail account with a mail service from this list, and then select Other. Click Next.
4. Select the protocol for this account. Check with your system administrator if you do not know the protocol.
5. In the first field, enter a descriptive account name. In the next two fields, enter the username you use to access your email and your email account password. Enter your email address in the last field. Click Next.

To set more options for incoming and outgoing messages select Advanced on the Account setup complete screen.

Most providers use the Post Office Protocol (POP); a few use the Internet Message Access Protocol (IMAP).

Your incoming mail server is also called your POP or IMAP server; your outgoing mail server is also called your SMTP server.

6. Enter the names of the incoming and outgoing mail servers for this account, whether the account requires Extended Simple Mail Transfer Protocol (ESMTP), and, if so, the username and password required for ESMTP. Check with your email service provider for this information. Click Next.
7. Select whether to synchronize the new account information from your desktop computer to your phone, or to set up another account, and then click Next.
8. When finished setting up all accounts, click Finish.
9. Synchronize to transfer all account information to your phone.

## Setting up an account on your phone

1. Go to Applications and select VersaMail.
2. Open the menus.
3. Select Accounts, and then select Account Setup.
4. Select New.
5. Enter the account info:
   - In the Account Name field, enter a descriptive name.
   - Select the Mail Service pick list, and then select your email provider. Select Other if your provider is not listed. Check with your email service provider to find the mail servers.
   - If you chose Other, select the Protocol pick list, and then select POP or IMAP. Check with your email service provider to find the protocol for your email account. If your email provider appeared in the Mail Service pick list, the protocol is automatically selected and the Protocol pick list does not appear.
   - Click Next.

6. Enter your identifying information:.
   - Enter the username you use to access your email.
   - Select the Password box, enter your email account password, and then select OK.
   - Select Next.
7. If you chose an email provider from the Mail Services pick list on the Account Setup screen, the mail server screen is already filled in. If you chose Other, enter your email address and the names of the incoming and outgoing mail servers.
8. Select Next, and then select Done.

## Creating and sending messages

1. From the Inbox, select New.
2. Begin entering the addressee's email address, first name, or last name. If the information you are entering matches one or more entries in Contacts, VersaMail displays the matching contacts. To accept a suggestion, select the correct contact. To send to a different address, keep entering the email address or name.
3. Enter the subject and message text. To move between fields, press Up ▲ or Down ▼.
4. Select one of the following:
   - Send: Connects and sends all messages immediately.
   - Outbox: Puts the message in the Outbox to send later.
   - Drafts: Saves the message and so you can continue working on it at another time.

If you select Send and the message cannot be sent for any reason, the message is stored in your Outbox.

To send a copy or blind copy, select Cc or Bcc and enter the address(es) in those fields. See "Customizing your email settings" on page 74 for details on displaying the Bcc field.

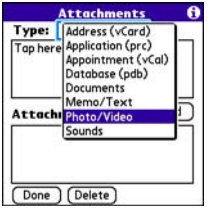
You can mark outgoing messages as high priority. Open the Options menu and select Set Priority To High.

If you can receive email messages, but cannot send them, contact your wireless service provider or email provider to obtain settings that let you access their mail server from a mobile device.

Repeat steps 2, 3 and 4 to attach more than one file to a message. To remove an attachment, select the file in the Attachments box, and then select Delete.

Ringtones that are copy protected appear in the Sounds application with a lock icon. These ringtones can be used on your phone only and cannot be sent as attachments.

## Attaching photos and videos




1. Create the message to which you want to attach the photo or video.
2. On the New Message screen, tap the red paper clip icon in the upper-right corner.
3. Select Photo/Video from the Type pick list.
4. On the Select Media screen, select the Album pick list and select the album containing the photo or video you want, and then check the box to the left of the photo or video.
5. Select Done.

## Attaching ringtones

1. Create the message to which you want to attach the ringtone.
2. On the New Message screen, tap the red paper clip icon in the upper-right corner.
3. Select Sounds from the Type pick list.
4. Select the ringtone you want, and then select Insert.
5. Select Done.

## Attaching Word, Excel, and PowerPoint files

1. Create the message to which you want to attach the item.
2. On the New Message screen, tap the red paper clip icon in the upper-right corner.
3. Select Documents from the Type pick list.
4. On the Documents screen, select the file you want.
5. Select Done.

## Attaching other types of files

1. Create the message to which you want to attach the item.
2. On the New Message screen, tap the red paper clip icon in the upper-right corner.
3. Select the type of file to attach—for example, Address, Appointment, or Memo/Text—from the Type pick list.
4. Select the file you want from the list in the Type box.
5. Select Done.

## Receiving and viewing messages

1. Make sure your phone is turned on (see "Turning the phone on and off" on page 14).
2. From any mailbox, select Get or Get & Send.
3. From the Inbox, select the message you want to view.
4. If a large incoming message is truncated, select More.
5. Select Done.

When viewing a message, tap the scroll arrows at the top of the screen to view the previous or next message.

If an attachment is not downloaded because it is larger than your maximum message size, the paper clip icon does not appear, and the attachment does not display at the bottom of the message screen. Select More to download and display any attachments.

## Replying to or forwarding messages

When you respond to messages, you can select whether to include the original text (see "Customizing your email settings" on page 74).

1. From the Inbox or another folder, open the message to which you want to respond.
2. From the Message View, select Reply. Select whether to reply to just the sender or to reply to both the sender and all addressees on the messages.
3. Enter your reply.
4. Select Send.

## Viewing attachments

There are a number of attachment types you can open with the built-in software on your Treo (for example, Microsoft Word, Excel, and PowerPoint files; ringtones; and photos).

1. From any folder, open the message with the attachment you want to view. Messages with downloaded attachments are indicated by a paper clip icon.
2. Tap the attachment name at the bottom of the message screen to view it in the default viewer on your phone. Or, tap the folder icon to the left of the attachment name to open a menu of tasks you can do with the attachment, including View, Install, or Unzip, depending on the attachment file type; Save to card to save the attachment to an expansion card; or Select Viewer to select the application you want to use to view the attachment.
3. When you finish with the attachment, select Done to return to the Attachments dialog box. If there is no Done button, go to Applications and select VersaMail to return to the Inbox of the account you were in.

## Managing your messages

The status text formatting and icons that appear near the messages in your Inbox indicate the following:

- Bold Text. The message has not been read.
- Plain Text. The message has been read.
- The message includes an attachment.
- This message is high priority.

You can rearrange the VersaMail list to make it easier to find and view messages.

- In the Inbox, select Sort, and then select one of the following: Sort by Date, Sort by Name, Sort by Subject.
- To quickly switch between folders in list view, select the folder pick list at the top of the screen and select the desired folder.

## Deleting selected messages from the Inbox

When you delete a message from the Inbox, it moves to the Trash folder, which stores the 200 most recently deleted messages. If you delete more than 200 messages, the oldest messages are automatically removed from the phone.

1. Select the bullet next to the icon of each message that you want to delete. To select adjacent messages, drag the stylus so it hits the bullet to the left of each message. Lift the stylus and drag again to select more adjacent messages.
2. Open the menus .
3. Select Delete on the Message menu.
4. If a confirmation dialog box appears, select OK to confirm deletion.

To empty (or purge) the Trash folder, open the Message menu and select Empty Trash.

To delete a single message, select the envelope icon next to the message, and then select Delete from the list.

## Deleting messages by date

You can quickly delete a group of messages by selecting a range of dates.

1. Open the menus .
2. Select Delete Old on the Message menu.
3. Select the folder and a date range for the messages you want to delete.
4. Select OK.
5. If a confirmation dialog box appears, select OK to confirm deletion.

## Switching accounts

You can switch between different email accounts.

1. Open the menus .
2. Select Accounts, and then select an account.

## Customizing your email settings

You can customize the VersaMail settings for each individual email account on your Treo. The preferences you set apply only to the email account you are currently viewing. If you have multiple accounts, configure each account separately.

You can set up a schedule to automatically retrieve email messages; set preferences for how and when messages are retrieved; add a signature to an outgoing message; and more. For complete information on all of the email settings you can customize, see the VersaMail User Guide on the CD.

## Scheduling Auto Sync

The VersaMail application allows you to automatically download new email messages to your phone with the Auto Sync feature.

1. Open the menus.
2. Select Options, and then select Preferences.
3. Select Auto Sync.
4. Check the Sync automatically box.
5. Select the Every pick list and select the time interval, from 15 minutes to 12 hours. Note that if you set a more frequent interval, you may need to recharge your phone's battery more often.
6. Select the Start and End Time for the first and last Auto Sync to take place. Select OK.
7. Select the days you want the schedule to be active. You can choose any number of days, but you can set up only one schedule for each email account.
8. Select OK, and then select Get Mail.

## Selecting alert tones

When you schedule Auto Sync for a given account, you can choose a sound—such as a bird, a phone, or an alarm—to let you know when new email arrives.

1. From any mailbox screen, open the menus.
2. Select Options, and then select Preferences.
3. Select Auto Sync.
4. Select Alerts.
5. Check the Notify me of new mail box.
6. Select the Notify Sound pick list, and then select a sound. Your Treo smartphone plays a brief demo of the sound.
7. Select OK.

You should perform a manual get mail after setting up a scheduled Auto Sync. Then, only new messages are retrieved during Auto Sync.

To receive notifications of successful Auto Sync retrievals only, uncheck the Notify me of auto sync failures box. Leave the box checked if you want to receive notifications of both successful and failed Auto Sync retrievals.

The VersaMail application sends all messages as plain text only, with all HTML tags stripped, even if you are forwarding or replying to a message that was originally received as HTML.

The POP protocol does not support retrieval of unread mail only from the server. If you have a POP email account, VersaMail downloads all messages regardless of whether you have read them, and regardless of whether this box is checked.

## Setting preferences for getting messages

1. From any mailbox screen, open the menus.
2. Select Options, and then select Preferences.
3. Select Delivery Options.
4. Set any of the following preferences.
   - Get: Indicates whether to get message subjects only or entire messages.
   - Ask Every Time: Indicates if you want to see a dialog box for selecting subjects only or entire messages each time you retrieve email. If the box is unchecked, messages are retrieved according to the option you select in the Get pick list.

   - Unread messages (IMAP accounts only): Downloads only unread mail to your phone. If you don't check this box and you select Get & Send, all of your messages on your provider's mail server are downloaded to your Inbox, including messages you have already read.
   - Mail from last: Gets messages sent within the number of days you specify.
   - Download attachments: Automatically downloads files attached to email. Attachments that exceed the maximum message size cannot be downloaded.
   - Maximum message size: Sets the maximum size of an incoming email message. Enter the size in kilobytes (KB). The default is 5KB, but you can enter any size up to 2048KB (approximately 2 megabytes, or 2MB), including attachments. The maximum message size that you can retrieve is 60KB for the body text and approximately 5MB of total data for any attachments.
   - Message Format: Sets the format in which you retrieve messages. Select HTML to display any messages sent in HTML format with basic HTML formatting intact, and other messages as plain text. Select Plain Text to display all messages as plain text, regardless of the format in which they were sent. The default setting is HTML.
5. Select OK.

## Attaching a signature to a message

You can attach a personal signature, with info like your company's address and fax and telephone numbers, to the bottom of all messages you send.

1. From any mailbox screen, open the menus .
2. Select Options, and then select Preferences.
3. Select Signature.
4. Check the Attach Signature box.
5. Enter your signature information, and then select OK.

## Working with Microsoft Exchange ActiveSync

Microsoft Exchange ActiveSync works with the VersaMail and Calendar applications on your phone to directly access corporate groupware information on a Microsoft Exchange 2003 server. You can access business email and calendar info on the Exchange 2003 server from your phone without using a desktop computer.

When you create an Exchange ActiveSync account in the VersaMail application, both your email and calendar info synchronize directly with the Exchange server; information on your phone does not synchronize with information in the desktop software application on your computer, such as Microsoft Outlook or Palm Desktop software. Other information, such as contacts, tasks, and memos, continues to synchronize with the info in your desktop software.

For complete information on using a Microsoft Exchange ActiveSync account, see the VersaMail User Guide on the CD.

The POP protocol does not support retrieval of unread mail only from the server. If you have a POP email account, VersaMail downloads all messages regardless of whether you have read them, and regardless of whether this box is checked.

# Messaging

You can exchange brief text messages with other mobile phones and with email addresses. Before you use your Treo 650 smartphone to send or receive messages, consult your wireless service provider for pricing and availability of text messaging services.

To address a message to multiple recipients, separate the addresses with a space or a comma. If you address a single message to three people, you will be billed for three messages.

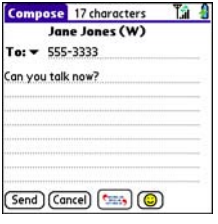
When addressing a message, you may need to press Option to enter letters or numbers. The Option Lock setting defaults to the setting you used the last time you addressed a message.

If you are out of a coverage area or if your phone is off, outgoing messages go into the Outbox and are sent automatically when you return to a coverage area.

## Creating and sending a text message

Each text message can hold up to 160 characters. Messages with more than 160 characters are automatically split into several messages. (If you send a text message to an email address, the email address is deducted from the 160 character count.)

1. Make sure your phone is turned on (see "Turning your phone on and off" on page 14)
2. Go to Applications and select Messaging .
3. Select New.




4. Select the To pick list to address the message:
   - If the recipient's name appears in the To pick list, select it from the list.

- If the recipient is in your Contacts list, select Lookup in Contacts, and then enter the first few letters of the recipient's first or last name. Highlight the recipient's phone number or email address, and then select Add.
- If the recipient's name is not in the pick list or your Contacts list, enter the full phone number or email address.

5. Enter your message, or select QuickText to insert predefined phrases. To insert emoticons, select .
6. (Optional) Open the menus , and then select a priority setting on the Compose menu.
7. Select Send.

## Receiving messages

When your phone is on and in an area of wireless coverage, you will automatically receive new text messages. You can also configure your smartphone to notify you when a new message arrives, using a ringtone and vibration or an onscreen alert.

The new message alert may include any of the following buttons:

- OK: Dismisses the alert and places the message in your Inbox.
- Reply: Opens the Chat View so you can respond to the message.
- Call Back: Dials the sender's phone number.
- Go To Msg: Opens the message so you can view its full contents.

To add a new QuickText phrase, select Edit QuickText from the QuickText list.

Not all symbols available on your phone may be used in text messages. The Messaging application automatically replaces invalid characters before it sends your message.

Select Save as Draft to save a draft of the message without sending it. To access the draft, select the category pick list at the top of the screen and select Drafts.

If you have multiple alerts, the Alert screen displays all your pending alerts. Select an item's description to jump to that item, or check the box to clear that item. To view all your pending alerts from any screen on your phone, press and hold Center.

You can send and receive messages even while you are on a phone call. This is the easiest to do when using a hands-free headset or the speakerphone. You can expand and collapse header information by selecting one of the header icons in the title bar of a message.

## Using links in messages

When you receive a text message that contains a telephone number, email address, or URL, you can dial the number, send an email message, or go to the web page immediately. Your Treo smartphone automatically opens the appropriate application from the link.

1. Select a message from the list.
2. Select the phone number, email address, or URL (appears as underlined blue text).

## Managing your messages

The status icons that appear next to each message in the Inbox and Outbox folders indicate the following:

- A text message. Urgent messages appear with a red exclamation point (!).
- A chat session.

In list view you can rearrange the messages in any folder using the Sort command.

1. From list view, open the menus.
2. Select View, and then select Sort by Name or Sort by Date.

In list view you can delete several messages at once from any folder using the Purge command.

1. From list view, open the menus.
2. Select Purge on the Message menu.
3. Select the Purge pick list and select an option.
4. Select OK.

## Chatting with Messaging

When you exchange more than one message with a single contact, your messages are grouped into a chat session. The upper part of the Chat View displays all messages you've exchanged with this contact, and the lower part provides a text entry area. You can carry on multiple chats at the same time and easily switch between them, using the pick list at the top of the screen.

1. From the Inbox, select a chat.
2. Enter your message.
3. Select Send.

## Customizing your Messaging settings

1. Open the menus .
2. Select Options, and then select Preferences.
3. Select the Messages tab and set any of the following preferences:
   - Confirm message deletions: Indicate if you want deletion confirmation messages to appear.
   - Privacy Mode (hide text): Indicate if you want the body text to appear in the alert when you receive a new message.

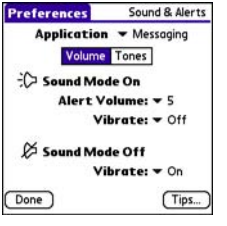
To find the conversations you had with someone, open your Messaging Inbox and select a chat session.

You can customize your Chat View settings on the Chat tab in Messaging Preferences. See "Customizing your Messaging settings" on page 81.

4. Select the Chat tab and set any of the following preferences:

   - Create Chats from Message: Indicate if you want to view messages from the same person to in a Chat screen.
   - Show message timestamps in chats: Indicate if you want to see the local date and time the message was sent next to each message.
   - Display my name in chat window as: Enter the name you want displayed as the label for your messages in the Chat screen.
   - Label color: Select the color in which you want messages to appear.
   - Use color for: Indicate if you want to view both the message label and the message in a different color or only the name.

## Selecting alert tones




1. Open the menus.
2. Select Options, and then select Alerts.
3. Select the Alert Volume pick list and select a volume level.
4. Select the first Vibrate pick list and indicate if you want your phone to vibrate during an incoming alert, when Sound Mode is on.
5. Select the second Vibrate pick list and indicate if you want your phone to vibrate during an incoming alert, when Sound Mode is off.

6. Select the Tones box.
7. Select the Message Tone pick list and select an alert tone for incoming messages.
8. (Optional) Select the Show Message Alerts Dialog if you want to receive onscreen alerts when a new message arrives.
9. Select Done.

# Browsing the web

The web browser on your Treo 650 smartphone provides quick and easy access to web pages. You can view most sites you use on your computer, including those with security and advanced features, such as JavaScript and frames. To browse the web, you must activate data services from your wireless service provider.

## Viewing a web page

The web browser uses patent-pending technology to optimize web pages for your phone. By default, the browser reformats web pages into a single column and resizes images on your screen. This way, you can see most content without scrolling left or right.

1. Make sure your phone is turned on (see "Turning your phone on and off" on page 14).
2. Go to Applications and select Web .
3. Navigate to the web page you want:
   - To view mobile content designed specifically for your smartphone, select the home icon .

The navigation bar shows status info while a page is loading. You don't have to wait for a page to fully load to navigate within the page or to select a link to another page.

To adjust the font size, open the Options menu and select Font. To fit more text on the screen, select Small. To make the text easier to read, select Large.

- To go to any web page on the Internet, enter the address in the Address Bar, or select the web icon. If you browse to a secure web page, a Lock appears in the Address Bar.
- To view the previous or next page, select or .
- To view a page in a wide layout format (as on your computer), select , and then select Wide Page Mode.
- To refresh the page with the latest content from the Internet, select .
- To scroll through the page in Optimized View, press Up ▲ or Down ▼. In Wide Page View, press Up ▲, Down ▼, Left ◀, or Right ▶ to scroll in all directions.
- To follow a link to another web page in Optimized View, press Left ◀ or Right ▶ to highlight the link, and then press Center to go to the selected page. You can also select the link on the screen with your stylus.

## Creating a bookmark

Bookmarks let you instantly access a web page without needing to enter the address every time. The web browser can store up to 100 bookmarks or saved pages, allowing you to open your favorite web pages quickly. Remember, a bookmark is different from a favorite (see “Defining favorite buttons” on page 51).

1. Go to the page you want to bookmark.
2. Open the menus .
3. Select Add Bookmark on the Page menu.
4. If desired, change the Name and Description.
5. Select OK, and then select OK again.

Want to get to the icons faster? Press Space to jump to the icons, or open the menus to access the same commands through the menus.

Always using bookmarks? Make Bookmark View the default view when you open the browser. Open the Options menu and select Preferences. Select the Start With pick list and select Bookmarks.

Need to send email from a web page on your Treo smartphone? Email addresses appear as links on web pages. After you configure an email application on your smartphone, you can select an email address link to create a message to the selected address.

## Saving a page

The web browser lets you save a page for offline viewing, so you don't need an Internet connection to view it later.

1. Go to the page you want to save.
2. Open the menus .
3. Select Save Page from the Page menu.
4. Select OK, and then select OK again.

## Viewing bookmarks or saved pages

Bookmarks and saved pages both appear in Bookmark View. Saved pages are indicated by a small triangle in the upper-right corner of the bookmark.

1. Select the Bookmarks View icon .
2. Select the bookmark or saved page you want to view.

## Editing or deleting a bookmark or saved page

1. From the Bookmarks View, open the menus .
2. Select Edit Bookmarks on the Bookmarks menu.
3. Select the bookmark you want to edit or delete.
4. Enter the desired changes.
5. Select OK.

## Arranging bookmarks and saved pages

The web browser includes ten pages so that you can arrange bookmarks and saved pages in a logical fashion. For example, you can store travel links on one page, stock links on another, and business links on third page.

1. From the Bookmarks View, open the menus.
2. Select Edit Bookmarks on the Bookmarks menu.
3. Enter a new title for this page.
4. Use the stylus to drag and drop bookmarks into different slots on the current page. To move a bookmark to a different page, drag and drop it on the Page icon.
5. Select OK.

## Downloading files from a web page

The web browser lets you download up to 2MB of files that are usable on your Treo smartphone, such as new applications, MIDI ringtones, or photos that are specifically tagged for download. When you download a file, it is automatically sent to the application that can use the file. For example, if you download an MP3 file, you can store it on an expansion card and play it on your phone later in the RealPlayer® application. You can also download files to an expansion card, even if the files are not usable on your Treo smartphone.

1. Go to the page that contains the link to the file you want to download.
2. Press Left ◀ or Right ▶ to highlight the link to the file, and then press Center to initiate the download process.

You can also access software and other downloads using the Downloads bookmark.

Tap and hold the back or forward buttons to pop up a list of sites you've visited.

If you can't edit, delete, or beam a bookmark, it is probably locked.

You can also copy WAV or MIDI files onto an expansion card and download them to your phone by pointing the web browser to the following address: file:///<folder>/yourmidifile.mid. (Of course you do need to replace <folder> with the folder name and <yourmidifile.mid> with the file name.)

Lots of pretty graphics slowing you down? Browse the web faster by turning off images. Open the Options menu, select Preferences, select General, and then check the Disable Images box.

If the web browser does not recognize a phone number as dialable, you can copy the phone number (as text) and paste it into the Phone Dial Pad.

You can also save an image from a web page by tapping and holding it with the stylus.

## Copying text from a web page

You can copy text from a web page and paste it in other applications.

1. Use the stylus to highlight the text you want to copy.
2. Open the menus .
3. Select Edit, and then select Copy.
4. Go to the application in which you want to paste, and then position the cursor where you want to paste the text.
5. Open the menus .
6. Select Edit, and then select Paste.

## Using the History list

The History list stores the addresses of the last 100 pages you visited. Items in the History list are sorted chronologically.

1. From the Page View, open the menus .
2. Select History on the Page menu.
3. Press Down ▼ to navigate through the list.
4. Select the web page you want to load.

## Finding text on a web page

1. From the Page View, open the menus .
2. Select Find Text on Page on the Page menu.
3. Enter the text you want to find.
4. Check or uncheck the Wrap Search box to indicate if you want the search to wrap from the end of the page to the beginning when the end is reached.
5. Select Find to start the search.

## Customizing your web browser settings

1. Open the menus .
2. Select Options, and then select Preferences.
3. Select Page and set any of the following preferences:

   - Start With: Determines which view displays every time you open the web browser.
   - Home Page: Sets the page that appears when you select .
   - Restore Default: Selects the original home page, if you changed it.
   - Show Address Bar: Sets whether the web address appears in Page View. When it is visible, you can select the pick list to go to a previously viewed page or enter a URL directly from Page View.
4. Select General and set any of the following preferences:

   - Disable Auto Complete: Determines whether the web browser suggests text, based on your previous entries, when you begin entering info.
   - Disable Images (faster): Determines whether images appear when you load a web page. If you don't view images, web pages will load faster. If you select not to view images, you can still see any image by selecting the placeholder box on the web page.
   - Disable JavaScript: Bypasses JavaScript elements on the web pages you view.
   - Disable Cookies: Determines if some web sites can store personalized info on your Treo smartphone. Some sites do not work properly if you select this option.
   - Tap and Drag: Determines whether dragging the stylus selects text or scrolls through the content of the page.

Visit secure websites. The security certificates and 128-bit Secure Socket Layer (SSL) encryption let you browse secure sites, such as online shopping, banking, and email. Remember: Some secure sites also require specific browsers and may not work with the web browser application.

The web browser supports JavaScript, SSL strong encryption, and cookies, but does not support plug-ins (Flash, Shockwave, etc.) or Java applets.

5. Select Advanced and set any of the following preferences:

   - Set memory limit for storing pages: Sets the amount of memory used for your cache. Pages are cached so they load faster the next time you view them.
   - Cookies: Indicates how much memory is being used by cookies. To free up this memory, select Clear Cookies.
   - Cache: Indicates how much memory is being used by your cache to store recent pages and history. To free up this memory, select Clear Cache.
   - Clear cache on exit: Determines if the cache clears each time you exit the Web browser.
   - Set Proxy: Sets up a proxy server to access the Internet. If your connection requires a proxy server, please contact your Internet service provider or IT administrator for this information.
6. Select OK.

## Manually disconnect the Internet connection

You can manually disconnect your smartphone's Internet connection.

1. From the Page View, open the menus .
2. Select Disconnect on the Page menu. You will automatically be prompted to reconnect to the Internet when you attempt to access a web page. You can also manually restore the connection by selecting Connect from the Page menu.

# Taking photos and videos

If your Treo 650 smartphone does not have a built-in camera, then the sections in this chapter about taking photos and recording videos do not apply to you. Even if your phone does not have a camera, you can still receive and view photos and videos, or send photos and videos to other people as email attachments.

You can also use photos to personalize your phone (such as wallpaper or photo caller ID; see "Assigning a caller ID photo" on page 140 for details). You can also move photos and videos to a computer by synchronizing your phone with your computer.

## Taking a photo

You can store photos on your phone or on an expansion card.

1. Go to Applications and select Camera .
2. Select the Album pick list and select the album where you want to save the photo.
3. (Optional) Adjust the zoom and resolution settings.
4. Point the lens on the back of your Treo smartphone at the subject you want to photograph.
5. Press Center to capture the photo.
6. After you take the photo, choose from the following options:
   - (Optional) Select Audio to add a voice caption.
   - Select Save to keep the photo, select Delete to discard it, or select Send to send the photo as a Messaging attachment.

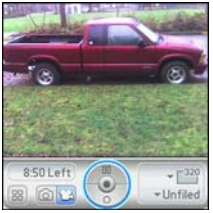
Photos are 16-bit color at a maximum of 640 x 480 pixels (0.3 megapixels) in VGA resolution or 320 x 240 pixels in QVGA resolution. Videos are 320 x 240 pixels in CIF resolution or 176 x 144 pixels QCIF in resolution.

You can also send videos by syncing your phone with your computer.

## Recording a video

You can store videos on your phone or on an expansion card.

1. Go to Applications and select Camcorder .
2. Select the Album pick list and select the album where you want to save the video. To create a new album or change where the video is stored, select Manage Albums from the list.
3. (Optional) Adjust the resolution settings.
4. Point the lens on the back of your smartphone at the subject you want to record.
5. Press Center to start recording.
6. When you're done recording, press Center again to stop.
7. Select Play to review the video.



8. Select Save to keep the video, select Delete to discard it, or select Send to send the video.

The video recording screen displays the approximate recording time you have left based on the space available on your phone or expansion card. Actual recording time may vary depending on how fast you are moving, how many colors you are recording, and so on.

Tap and drag the progress indicator bar to jump to a different section of the video. Select Pause to pause video playback.

## Viewing a photo

1. From the Gallery, select the photo you want to view.
2. Press Up ▲ or Down ▼ to zoom in and out.
3. If the photo has a voice caption, select Audio to hear it.
4. Select Done.

## Viewing a video

1. From the Gallery, select the video you want to view.
2. Press Up ▲ or Down ▼ to adjust the volume.
3. Select Done.

## Viewing a slide show

1. From the Gallery, select Slide show.
2. Tap the screen to return to the thumbnail view.

## Sending a photo or video

You can send a photo to other photo-enabled mobile phones or to an email address.

1. From the Gallery, highlight the photo or video you want to send.
2. Select Send.
3. If you are sending a photo, the Messaging application opens. Add an address and send the message. (See "Creating and sending messages" on page 69 for details.)
4. Add an address and send the message.

To change the Gallery display format, select List and Thumb.

To view a different album, select the Album pick list in the upper-right and select the album you want to view.

To view an album stored on an expansion card, insert the card and select Card in the upper-right corner.

To view other full-size photos, press Right ▶ and Left ◀.

To rotate a photo, open the Media menu and select Rotate Picture. Select the photo you want to rotate, and then select the orientation.

## Copying a photo or video

You can copy photos or videos from your phone to an expansion card, and vice versa.

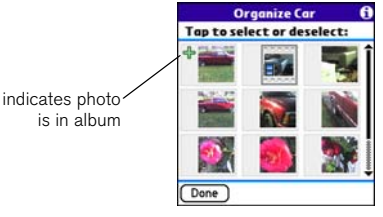
1. From the Gallery, select the photo(s) or video(s) you want to copy.
2. Open the menus.
3. Select Copy to Card (for items on your phone) or Copy to Device (for items on an expansion card) from the Media menu.

You cannot send copyrighted photos or videos that appear with a Lock icon in the Gallery View.

To copy an entire album, open the Media menu, go to Album, and select Copy Album to Card or Copy Album to Device. Select the album you want, and then select Copy.

## Organizing photos and videos

1. From the Gallery, select the album you want to organize.
2. Select Organize.
3. Select a photo or video to add it to or to remove it from the album.
4. Select Done.




## Saving a photo as wallpaper

1. From the Gallery, select the photo you want to use as wallpaper.
2. Open the menus.
3. Select Save as Wallpaper on the Media menu.
4. When the confirmation message appears, confirm by selecting Yes, or decline by selecting No.

## Deleting a photo or video

1. From the Gallery, select the photo or video you want to delete.
2. Open the menus.
3. Select Delete from the Media menu.
4. Select Delete to confirm deletion.

## Customizing your Camera settings

If your Treo 650 smartphone has a built-in camera, you can customize the camera's settings.

1. From any Camera view, open the menus to access the Settings screen. If you are in Camera mode, the Photo Settings screen will appear. If you are in Video (Camcorder) mode, the Video Settings screen will appear.
2. Set any of the following preferences:
   - Effects: Sets the color palette for the current photo or video. You cannot change an item's palette after you take the photo or video.
   - Prompt sounds: (photos only) Sets the sound that plays before you take the photo.
   - Shutter sounds: Determines if a sound plays when you take a photo.
   - Microphone: (videos only) Turns the microphone on and off so that you can record videos with or without sound.
   - Resolution: Sets the default size for newly captured photos or videos.
   - Date stamp: (photos only) Determines if the date the photo is taken appears on your photos.
   - Review photos/videos: Determines if you can review photos or videos before saving them and how quickly they are automatically saved.
   - Auto naming: Assigns a name to a series of photos to be captured, such as Seattle001, Seattle002, and so on.

You can personalize a photo. Open the Photo menu, select Draw on Photo, and then use the drawing tools to add your own personal touch. When you save the photo, you can replace the original or save a copy.

You can also open the Gallery from the Applications View. Go to Applications and select Media.

Videos are captured in the 3GPP2 format, which has the .3G2 file type extension.

3. Select OK.

## Viewing photos and videos on your computer

When you synchronize your Treo 650 smartphone, your photos and videos are copied to your desktop computer. You can view photos in JPEG format and videos in MPEG-4 format (.3G2 file extension). You can email them to friends using your desktop email application.

- Windows: Refer to the Palm Desktop Online Help for information about using the palmOne™ Media desktop application.
  - To find all synchronized images, look in C:\Program Files\palmOne\<User folder>\Photos\offline copy location.
  - To find your captured photos, look in C:\Documents and Settings\<User name>\My Documents\My Pictures\palmOne Photos\<User Folder>.
  - To find your captured videos, look in C:\Documents and Settings\<User name>\My Documents\My Videos\palmOne Videos\<User Folder>. Use QuickTime 6.5 for Windows to play videos on your computer.
- Mac: There is no palmOne Media desktop application for Mac computers.
  - To find your photos, open Home/Pictures/palmOne Photos/<Palm User Name>, and then double-click the photo you want view.
  - To find your videos, open Home/Movies/palmOne Videos/<Palm User Name>. Use an application that supports 3GPP2 files, such as QuickTime, to play your videos.

# first two weeks:
# using organizer features

# Managing contacts

If you are familiar with previous Palm Powered™ devices, you may recognize the Contacts application being similar to the Address Book on previous devices.

If you have several contacts to enter, it's more efficient to use Palm® Desktop software or Microsoft Outlook on your computer and then synchronize onto your Treo™ 650 smartphone. For more information, see "Synchronizing contacts and other information" on page 31.

You can also open Contacts from the Applications View. Go to Applications and select Contacts.

## Adding a contact

1. Press Phone/Send .
2. Select the Contacts favorite button.
3. Select New Contact.

4. Use the 5-way navigator to move between fields as you enter information.
5. To add a caller ID photo that displays when that person calls, select the Picture box. Select Camera to take a photo and add it to this contact entry when you save the photo, or select Photos to add an existing photo to this contact entry.
6. To place the entry in a category or mark it private, select Details.
7. To add a note to an entry, select Note .
8. To display additional fields for this contact, select Plus .
9. After you enter all the information, select Done.

## Viewing or changing contact information

1. In the Contacts list, begin entering one of the following for the contact you want to view or edit:
   - First initial and last name
   - First name
   - Last name
2. Select the name of the entry you want to open.
3. Select Edit.
4. Make changes to the entry as necessary.
5. Select Done.

In the Contacts list, press Up or Down to move to the previous or next Contacts record.

## Deleting a contact

1. Open the contact you want to delete.
2. Open the menus .
3. Select Delete Contact on the Record menu.
4. Select OK.

## Defining your business card

1. Create a new contact with your business card.
2. While still in Contact Edit View, open the menus .
3. Select Business Card on the Record menu.
4. Now you can beam your business card to other Palm Powered devices. In any Phone view, open the menus . Select Beam Business Card on the Record menu.

# Calendar

If you have several appointments to enter, it's more efficient to use Palm Desktop software or Microsoft Outlook on your computer and then synchronize the info on your smartphone with the info on your computer. For more information, see "Synchronizing contacts and other information" on page 31.

## Displaying your calendar

- Press the Calendar button repeatedly to cycle through the various views:
  - Agenda View: Shows your daily schedule and any items on your Tasks list that are overdue or due today. If there's room, Agenda View also shows your schedule for the next dates that have events scheduled.
  - Day View: Shows your daily schedule one day at a time.
  - Week View: Shows your schedule for an entire week. The time frames are based on the Start Time and End Time settings in Calendar Preferences.
  - Month View: Shows your schedule for a whole month.

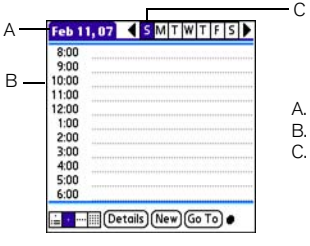
- From any Calendar view, open the Options menu and select Year View to view a calendar for an entire year.
- From Day View, Week View, Month View, or Year View, use the 5-way to move to another day, week, month, or year (based on the current view).
- From Day View, Week View, Month View, or Year View, select Go To, and then select a date from the calendar.

## Creating an event

1. Press Calendar until you are in Day View.
2. Press Left ◀ or Right ▶ to select the desired day.
3. Using the keyboard, enter a starting hour for the event. For example, enter 5 for 5:00 (remember to press Option before entering numbers).
4. Select the starting minute for the event.

5. Select the End Time box and select the ending hour and minute for the event.
6. (Optional) Select the Time Zone pick list and select a time zone.
7. Select OK.
8. Enter a description for the event.

IMPORTANT: If you use Palm Desktop software, do not add time zones to your events. Palm Desktop does not support time zones. If you use Microsoft Outlook, you can use the time zone feature, but you must install the conduit that came with your Treo 650 smartphone (or a subsequent update) on all the computers you sync your phone with. Chapura PocketMirror and other earlier Microsoft Outlook conduits do not support time zones.




A. Selected date
B. Starting and ending times
C. Selected day

## Adding an alarm reminder to an event

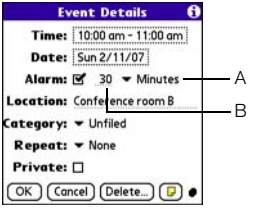
1. In Calendar, select the event.
2. Select Details.
3. Check the Alarm box and select the number of minutes, hours, or days before the event you would like to receive the alarm.

To automatically assign a time zone to your events, open the Options menu, select Preferences, and check the New events use time zones box. All your new events will be assigned to your local time zone, and you can change this setting for individual events. If you sync your phone with Outlook and you select the time zone option on the Contacts conduit sync screen, then time zones will sync with any new events you create in Outlook.

The silent alarm for untimed events is defined by minutes, days, or hours before midnight of the date of the event.

When an alert occurs, the Alert screen displays all your pending alerts. Select an item's description to jump to that item, or check the box to clear that item.

4. Select OK.




A. Type of time units
B. Number of time units

## Creating an untimed event

An untimed event, such as a birthday or anniversary, does not occur at a particular time.

1. Press Calendar until you are in Day View.
2. Press Left ◀ or Right ▶ to go to the date of the event.
3. Make sure nothing is highlighted.
4. Enter a description for the event. A diamond appears next to the description of an untimed event.

## Color-coding your schedule

Use color-coding to quickly spot different types of events. For example, make your appointments with family green, coworkers blue, and friends yellow.

1. From Day View, select the event description.
2. Select Details.
3. Select the Category pick list and select Edit Categories.
4. Select New or select a category and select Edit.

5. Enter the category name.
6. Select the color you want to give this category.
7. Select OK, and then select OK two more times.

Now that the category is set up, you can assign a specific event to this category. See the next section for details.

## Editing or deleting an event

1. Select the event you want to reschedule.
2. Select Details.
3. In addition to the settings covered earlier in this chapter, you can also change any of the following settings:
   - Date and Time: When the event takes place. Change these settings to reschedule the event.
   - Location: A description of where the event takes place.
   - Category: The color-coded category for this event.
   - Note : Space for you to enter additional text.
   - Delete: The event is erased from your calendar.
4. Select OK.

## Scheduling a repeating event

1. Create an event, and then select it.
2. Select Details.
3. Select the Repeat pick list, and then select a repeat interval.
4. For weekly events, select the day(s) the event repeats; for monthly events, select Day or Date to indicate the repeating method.
5. If the event has an ending date, select the End on pick list, select Select Date, and then select the ending date.

To save memory, you can purge your old events. Open the Record menu and select Purge. Select the Delete events older than pick list and select a timeframe. Select OK.

If you sync with Microsoft Outlook and your events include other people, a With field appears in the Details dialog box and your attendee info appears in this field after you sync.

To enter a birthday, add this info to the person's Contacts entry.

To enter an anniversary, create an untimed event. Then, from the Details screen, select Year as the repeat interval.

You can customize your phone to display the most current Calendar event on the Main View in the Phone application. Press Phone/Send, open the Options menu, and then select General Preferences. Check the Show Calendar event box.

6. Select OK.

A. This icon indicates a repeating event.

## Customizing display options for your calendar

1. Open the menus.
2. Select Options, and then select Display Options.
3. Select the Default View pick list and select the view you want to see when you open Calendar.
4. Select the Agenda box and set any of the following options:
   - Show Due Tasks: The tasks that are due today and the tasks that are overdue display in Agenda View.
   - Show Messages: The number of read and unread email messages displays in Agenda View.
   - Background: A favorite photo becomes the Agenda View background. Check the Background box, tap the photo thumbnail, and then select a photo. Adjust the fade setting so that the text is easy to read against the photo.

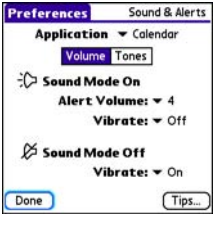
5. Select the Day box and set any of the following Day View options:

   - Show Category List: The Category pick list displays in Day View.
   - Start Time and End Time: The beginning and end of the day show on the Calendar screens.
   - Show Time Bars: The time bars appear in the Day View to show the duration of an event and to illustrate event conflicts.
   - Compress Day View: When this box is checked, all time slots display. When this box is unchecked, start and end times display for each event, but blank time slots toward the bottom of the screen disappear to minimize scrolling.
   - Show Category Column: The color-coded category marker appears between the time and description to indicate which category the event is filed under.
6. Select the Month box and set any of the following Month View options:

   - Show Category List: The Category pick list appears in Month View.
   - Timed Events: The events that are scheduled for a specific time appear in Month View.
   - Untimed Events: The events that are scheduled for a specific date but not a specific time appear in Month View.
   - Daily Repeating Events: The events that repeat every day appear in Month View.
7. Select OK.

## Selecting alarm tones

1. Open the menus.
2. Select Options, and then select Sound Preferences.
3. Select the Volume box.
4. Select each pick list and select an Alert Volume and Vibrate options.
5. Select the Tones box.
6. Select tones from any of the following pick lists:
   - Alarm Sound: The tone played the first time your alarm goes off.
   - Reminder Sound: The tone played if an alarm is not acknowledged and the alarm repeats itself.
   - Play Sound: The number of times an alert tone will play during the alarm sequence.
   - Repeat Alarm: The number of times the alarm repeats itself if the alarm is not acknowledged.
   - Every: The interval between alarm repeats if the alarm is not acknowledged.
   - Alarm Preset: A default for the number of minutes, hours, or days before the event for which the alarm goes off.
7. Select Done.



You can also preview, delete, and send sounds on your phone. Go to Applications and select Sounds. Select Tones, and then select Manage. To play a sound, select it and press Center. To delete a sound, select it and press Backspace, and to send a sound, select it, and then select Send.

# Tasks

You can use Tasks as a reminder of tasks you need to complete and to keep a record of complete tasks.

## Adding a task

1. Go to Applications and select Tasks .
2. Select New to create a new task.
3. Enter a description of the task. The text can be longer than one line.

You can set Tasks to record the date that you completed the task, and you can select to show or hide completed tasks. Completed tasks remain in the memory of your phone until you purge them.

You can display your tasks in your calendar. See "Customizing display options for your calendar" on page 104 for details.

Open the menus to access other features such as importing phone numbers into the Tasks list.

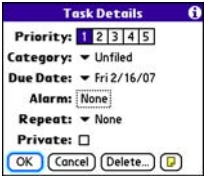
## Setting task priority, due date, and other details

The Details dialog box enables you to assign a priority level, due date, category, privacy flag, and note for each task.

1. Select the task to which you want to assign details.
2. Select Details.
3. Set any of the following:
   - Priority: Select the Priority number for this task (1 is most important). Later you can arrange your tasks based on the importance of each task.
   - Category: Assign the task to a specific category.
   - Due Date: Select the Due Date pick list and select a due date for the task.
   - Alarm: Set an alarm for this task.
   - Repeat: Indicate if the task occurs at regular intervals and how often it repeats.
   - Private: Check this box to mark this task private.
   - Note: Enter additional text you want to associate with the task.
4. Select OK.

You can also set the priority by selecting the Priority number next to a task and then selecting a priority level from the list

If you turn on the Show Due Dates option in the Tasks Preferences screen, you can tap directly on the due date in the Tasks list to select a new date.



## Checking off a task

1. Select the task you want to check off.
2. Press Center to check off the task.

## Organizing your tasks

In the Tasks list, select one of these options:

- All: Displays all your tasks.
- Date: Displays tasks that are due in a specific time frame. Select the Category pick list (in the upper-right) to select Due Today, Last 7 Days, Next 7 Days, or Past Due.
- Category: Displays tasks that are assigned to the selected category. Select the Category pick list to select a different category.

## Deleting a task

1. Select the task you want to delete.
2. Open the menus.
3. Select Delete Task on the Record menu.
4. Select OK.

To uncheck the selected task, press Center.

Overdue tasks have an exclamation point (!) next to the due date.

To save memory, you can purge all completed tasks. Open the Record menu and select Purge. Select OK.

## Customizing Tasks

The Tasks Preferences screen enables you to control the appearance of the Tasks list screen.

1. In the Tasks list screen, open the menus.
2. Select Preferences in the Options menu.
3. Set any of the following preferences:

- Sort by: Indicates the order in which your tasks appear in the list.
- Show Completed Items: Displays tasks you've checked off.
- Record Complete Date: Replaces due date with the completion date when you complete (check) the task.
- Show Due Dates: Displays task due date, and inserts an exclamation point (!) next to overdue tasks.
- Show Priorities: Displays the priority setting for each task.
- Show Categories: Displays the category for each task.
- Alarm Sound: Sets the sound for the alarms you assign to your tasks.

4. Select OK.

# Memos

Memos are a great way to store notes on your Treo 650 smartphone.

## Creating a memo

1. Go to Applications and select Memos .
2. Enter the text you want to appear in the memo.
3. Select Done.

## Deleting a memo

1. Select the memo you want to delete.
2. Open the menus .
3. Select Delete Memo on the Record menu.
4. Select OK.

Each memo can include 4,096 characters of text.

You can assign categories to your memos. Open the item you want to change, select the category pick list at the top of the screen, and select a category.

You must use an expansion card to listen to music on your phone. You cannot store music in your phone's internal memory.

You can also use a card reader accessory (sold separately) to transfer MP3 files from your computer to your expansion card. Create an SD_Audio folder in the root directory of the card, and store your MP3 files in this folder.

# Listening to music

You can listen to music through the speaker on the back of your phone or through a stereo headphone (stereo headphone adapter or 2.5mm stereo headphone required, sold separately).

## Transferring MP3 files from your computer

The RealPlayer® software that comes with your phone is compatible with the popular MP3 audio file format as well as the RealAudio® RA, RM, and RMJ file formats. If your songs are already on your computer's hard drive in one of these formats, you can use palmOne™ Quick Install software to transfer your songs to an expansion card (sold separately) so that you can listen to them on your phone.

If your songs are on a CD, you can use the RealPlayer desktop software on your Windows computer to convert the files and transfer them to an expansion card. See the RealPlayer desktop online Help for details. You can install the RealPlayer desktop software from the Software Essentials section on the palmOne Software Installation CD that came with your Treo 650 smartphone.

If you want to download songs from the Real® Music Store (additional fees may apply), you need to download and install a special version of RealPlayer for palmOne that is compatible with Real Music Store files. To download this special version, visit www.real.com.

1. Connect your Treo smartphone to your computer with the USB sync cable.
2. Insert an expansion card into your smartphone.
3. Do one of the following:
   - Windows: Drag and drop the file(s) or folder onto the palmOne Quick Install icon on the Windows desktop.
   - Mac: Drag and drop the MP3 files onto the Send To Device droplet in the Palm folder.

4. Select your Username, the File name, and the Destination (card).
5. Click OK.
6. Synchronize your smartphone with your computer. Be patient; transferring music to an expansion card can take several minutes.

## Transferring music from a CD to your phone

To transfer music from a CD to your phone, the music files must be in MP3 format. You can convert music files to MP3 format using the RealPlayer desktop application. You must install this software from the palmOne Software Installation CD even if you already have a version of the RealPlayer desktop application on your computer. After you install the software, follow these steps to transfer music to your phone.

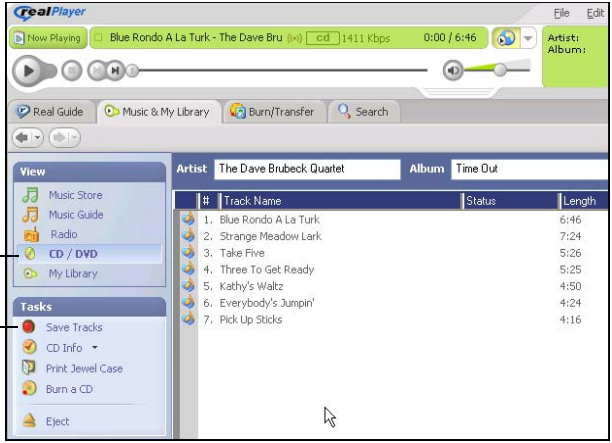
1. Double-click the RealPlayer icon on your computer desktop.
2. Insert the CD into your computer's CD drive.
3. If the track list doesn't appear, click Music & My Library, and then click CD/DVD in the View menu.

On a Mac, use iTunes (included with OS X) to convert music from a CD to MP3 format. You can then follow the steps to transfer MP3 files onto your phone. For details on using the iTunes software, see the documentation that came with your Mac.

For tips on using RealPlayer on your computer, go to the Help menu in RealPlayer or visit www.real.com.

Do not press the sync button on your cable. RealPlayer transfers the files, so there's no need to do anything.

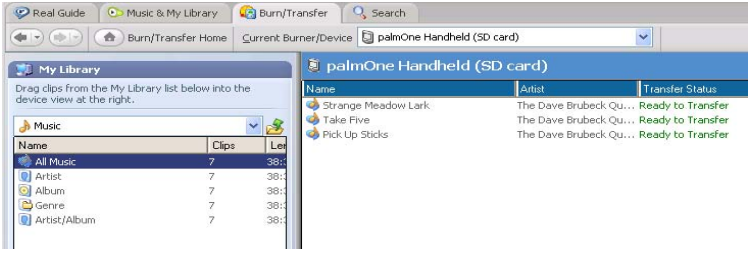
4. Click Save Tracks, and follow the onscreen instructions to select and copy tracks.




A. CD/DVD
B. Save Tracks

5. Go to Applications and select RealPlayer .
6. Connect your phone and your computer to the USB sync cable.
7. In RealPlayer on your computer, click Burn/Transfer.
8. If necessary, select palmOne Handheld from the Current Burn/Transfer Device drop-down list.

9. Drag the song files you want from the My Library window on the left into the palmOne device window on the right.




10. Be sure your phone is on and that RealPlayer is open. If it is, a green Connected light appears in the lower-left corner of RealPlayer on your computer.
11. Click Start Transfer. When the transfer is complete, the tracks you selected should say "On Device."

## Listening to music on your Treo smartphone

1. Go to Applications and select RealPlayer .
2. Do any of the following:
   - To play (or pause) the current song, press Center or the Side button.
   - To play the next song, press Right .
   - To play the previous song, press Left .
   - To play a different song, use the stylus to select Songs and select a song from the list.
   - To select random or continuous playback, use the stylus to select the onscreen controls.

You can customize your Treo smartphone so that pressing and holding the Side button opens RealPlayer. See "Button settings" on page 147 for details.

To view details for the song that is currently playing, open the Music menu and select Song Details.

To play songs from a playlist, select Playlists, select the playlist you want to play, and then select the first song you want to hear on that list.

To delete a playlist, select Playlists, select the playlist, and then select Delete.

- To adjust the volume during playback, press the Volume button.

A. Progress indicator
B. Continuous play
C. Random play

RealPlayer continues playing until it reaches the end of your list or until you select Stop. Music continues to play even if you switch to another application or turn off your screen. If you want to stop playing music when you exit RealPlayer, open the Options menu and select Preferences. Uncheck the Enable Background Playback box, and then select OK.

## Creating a playlist

1. Select Playlists.
2. Select New.
3. Enter a Name for the playlist.
4. Select Add.
5. Check the box next to the songs you want to include on the playlist.
6. Select Done, and then select Done again.

Add Songs to Playlist
Strange Meadow Lark - The Da...
Take Five - The Dave Brubeck Q...
Pick Up Sticks - The Dave Brube...
Done
Select All
Select None

## Editing a playlist

1. Select Playlists.
2. Select the playlist you want to edit.
3. Select Edit.
4. Do any of the following:
   - To delete a song from the playlist, select the song, and then select Remove.
   - To add a song, select Add, check a song's box, and then select Done.
   - To move a song up or down one slot, select a song, and then select the up or down arrow.
5. Select Done, and then select Done two more times.

# World Clock

World Clock displays the day and time in your home city and in two other cities around the globe. Whether you're travelling or at home, it's easy to keep track of the best time to reach your business associates, friends, and family in far away places.

World Clock does not automatically update the system time for Daylight Savings Time.

Run your stylus over the map to see the time in other cities.

The shadow over the map represents nighttime moving across the globe.

## Setting your home city

The home city serves as a point of reference for your other city selections. The home city time reflects the current system time. The information displayed for the other cities is based on the day and time in your home city.

If the Enable Local Network Time box is checked in your Date & Time Preferences, your wireless service provider's network automatically sets the time and updates it when you travel.

1. Go to Applications and select World Clock .
2. Select the City pick list at the top of the screen and select the city closest to your location (in the same time zone).
3. Select OK.

A. Home city

## Selecting remote cities

In addition to your home city, you can display the day and time for two other cities anywhere around the globe. These other cities are called remote cities.

- Select a pick list in the lower part of the World Clock screen, and then select the city closest to the city you want to display.

## Adding cities

If the city you want to display is not in the predefined list, you can add it.

1. Select a City pick list and select Edit Cities.
2. Select New.
3. Enter the city name and other information.
4. Select OK.

## Setting an alarm

1. Select Off in the upper-right corner.
2. Select the time you want the alarm to sound.
3. Select OK.

To customize the alarm sound and volume, open the Options menu and select Alarm Preferences.

# Calculator

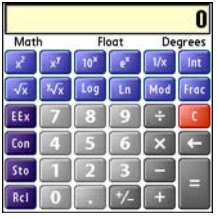
Calculator includes a basic calculator, plus an advanced calculator with scientific, financial, and conversion functions.

You can tap the screen or use the keyboard to input numbers.

In Basic Mode, you can also press Right ▶ to switch to Advanced Mode. In Advanced Mode, press Right ▶ to cycle between functions, and press Left ◀ to return to Basic Mode.

## Switching between Basic and Advanced Calculator Modes

1. Go to Applications and select Calculator .
2. Open the menus .
3. Select Options, and then select Advanced Mode or Basic Mode.




## Selecting functions in Advanced Calculator Mode

1. Switch to Advanced Mode (see above).
2. Open the menus .
3. Select Options, and then select the function you want to use:
   - **Math:** Advanced mathematical functions such as exponents, roots, and logarithms.
   - **Trig:** Trigonometric functions such as sine, cosine, tangent, and variants.
   - **Finance:** Financial calculator functions such as APR and amortization.

- Logic: Hexadecimal characters in keypad, plus logic functions such as and, not, or and xor. In place of Float/Degrees (see below), this view includes options for class (bin, oct, SDec, UDec, hex) and bits (8, 16, 32).
- Statistics: Statistical functions such as sum, factorial, and random number generator.
- Weight/Temp: Weight and temperature conversions for metric and English values.
- Length: Length conversions for metric and English values.
- Area: Area conversions for metric, traditional, and English values.
- Volume: Volume conversions for metric and English values.

4. Open the menus.
5. Select Pref, and then select the decimal display format: Float, Fixed (x), Sci (x), or Eng (x).
6. Open the menus.
7. Select Pref, and then select the number display format: degrees, radians, or grads.

Select Sto to store a number in one of ten memory slots. Select Rcl to recall a stored number.

Select Con to access a list of mathematical constants such as Avogadro's number or the speed of light.

# Looking up contacts and other information

If entering the first few letters doesn't start a search, go to Applications and select Contacts, and then try step 2 again. To set your smartphone to search from the Main View of the Phone application, go to that view, open the Options menu, and select General Preferences. Then select the second pick list and select Typing starts contacts search.

To look up contacts in other applications, select the Lookup button if it appears.

With the built-in search features on your Treo smartphone, you can find information quickly:

- **Lookup:** Enables you to dial your contacts by name. It locates people's phone numbers when you're in the Phone or Messaging applications.
- **Find:** Searches through the text in all the applications on your smartphone.

## Looking up contacts

You can look up contacts directly from the Contacts list. This feature helps you locate contacts quickly by entering just a few letters of a contact's name.

1. Press the Phone/Send button.
2. Select the Contacts favorite button.
3. From the Contacts list, enter the first few letters of the contact you want to find. You can enter:
   - First name (JOH for John) or
   - Last name (SMI for Smith) or
   - First name initial and last name (JSM for John Smith)

For example, entering SM would display Smilla Anderson, John Smith, and Sally Martin. Entering JSM finds only John Smith.

4. Do one of the following:
   - Highlight the contact name, and then press Center to view the contents of the record.
   - Highlight any phone number, and then press Phone/Send to dial.

## Using Find

The Find feature locates any text in the built-in applications and databases and in some third-party applications. The Find feature performs an exact search on a character string, including characters that are parts of words.

1. Press Option, and then press Shift/Find to open the Find dialog box.
2. Enter the text you want to find.
3. Select OK to start the search.
4. In the search results, select the text you want to review, or select Find More to search additional applications.

# Beaming information

You can store a beamed application on your phone, or send it to an expansion card inserted in the expansion card slot.

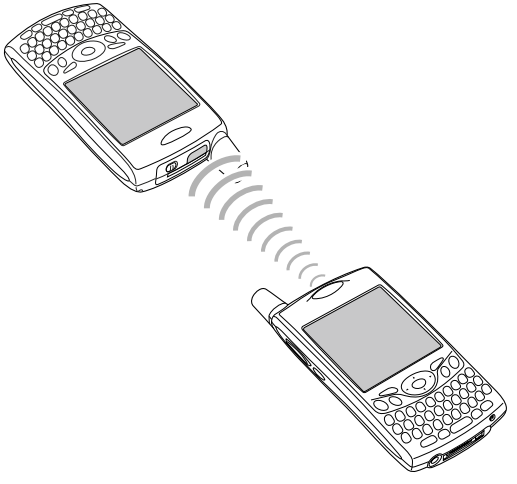
Beam your business card in two key presses: From the Main View in the Phone application, open the menus, and then press "M".

If you beam a bookmark or saved page from the web browser, it beams the URL, not the contents of that page.

Your Treo 650 smartphone is equipped with an IR (infrared) port that lets you beam information to another Palm Powered device with an IR port. The IR port is located on the top of your smartphone, between the antenna and the ringer switch, behind the small dark shield.

## Beaming a record

1. Select the entry or category you want to beam. If a lock appears next to the item, it can't be beamed.
2. Open the menus.
3. Select Record, and then select one of the following:
   - **Beam:** Sends an individual record.
   - **Beam Category:** Sends all entries in the current category.
4. When the Beam Status dialog box appears, point the IR port on your Treo smartphone directly at the IR port of the receiving device.
5. Wait for the Beam Status dialog box to indicate that the transfer is complete before you continue using your smartphone.



## Beaming an application

Not all applications can be beamed. A Lock icon appears on the Beam screen next to applications that cannot be beamed.

1. Go to Applications.
2. Open the menus.
3. Select Beam on the App menu.
4. Select the Beam From pick list and select whether the application you want to beam is located on your Treo smartphone or on an expansion card.
5. Select the application you want to transfer.
6. Select Beam.

For best results, the path between the two devices must be clear of obstacles, and both devices kept stationary. If you have difficulty beaming, shorten the distance and avoid bright sunlight.

If you do not select a category upon receiving a beamed item, the item is placed in the Unfiled category.

If you can't receive beamed information, try a soft reset (see "Resetting your Treo™ 650 smartphone" on page 166).

7. When the Beam Status dialog box appears, point the IR port on your smartphone directly at the IR port of the receiving device.
8. Wait for the Beam Status dialog box to indicate that the transfer is complete before you continue using your smartphone.

## Receiving beamed information

1. Turn on your screen.
2. Point the IR port on your Treo smartphone directly at the IR port of the transmitting device to open the Beam Status dialog box.
3. When the Beam dialog box appears, select a category for the entry.
4. Press Up ▲ to receive the beam or press Down ▼ to refuse it.

# first month: managing applications

# Installing applications

On a Windows computer, you can also access palmOne Quick Install by selecting the Quick Install icon in Palm Desktop software or on the Start menu in the Programs folder.

Your Treo™ 650 smartphone comes with several built-in and ready to use applications. You can also install any of the bonus software included on the palmOne Software Installation CD as well as other third-party Palm OS® applications, such as business software, games, and more. To learn more, go to www.palmOne.com/us/support.

When you download an application to your computer, it is probably in a compressed format such as a .zip or .sit file. If the file is compressed, you need to use a decompression utility on your computer, such as Winzip or Unstuffit, before you install applications on your smartphone.

These instructions tell you how to install basic .prc (Palm OS application) and .pdb (Palm OS database) files onto your Treo smartphone. Some Palm OS software uses an installer or wizard to guide you through the process. Consult the documentation that came with the software for details.

## Installing applications from the Internet

You can install Palm OS applications directly from the Internet, using the web browser on your Treo smartphone. When you download an application, it automatically installs on smartphone. Remember: Palm OS applications have .prc or .pdb at the end of their file names.

1. Open the web browser (see "Viewing a web page" on page 84).
2. Go to the page that contains the link to the application you want to download.
3. Press Left ◀ or Right ▶ to highlight the link to the file, and then press Center to initiate the download process.

## Installing applications from a Windows computer

1. Drag and drop the file(s) onto the palmOne™ Quick Install icon on the Windows desktop.
2. Select your username from the list, and then click OK.
3. Synchronize your phone with your computer to install the application(s) on your Treo smartphone.

## Installing applications from a Mac computer

1. Drag and drop the file(s) onto the Send To Device droplet in the Palm folder.
2. Select your username from the list, and then click OK.
3. Synchronize your phone with your computer to install the application(s) on your Treo smartphone.

## Getting help with third-party applications

If a you encounter a problem with a third-party application (such as an error message), contact the application's author or vendor. For general troubleshooting of third-party applications, see "Third-party applications" on page 188.

Before you can install an application from your computer to your Treo smartphone, you need to install Palm Desktop software on your computer (see "Installing the desktop synchronization software on your computer" on page 30).

To control whether files are installed on your phone or on an expansion card, double-click the palmOne Quick Install icon on a Windows computer or open the HotSync menu and select Install Handheld files on a Mac. Select your username, click Add, and then select the files you want to install.

# Removing applications

If you decide that you no longer need an application, or you want to free up memory, you can remove applications from your smartphone or an expansion card (for more on expansion cards, see "Inserting and removing expansion cards" on page 133). You can remove only applications, patches, and extensions that you install; you cannot remove the built-in applications that reside in the ROM portion of your Treo smartphone.

1. Go to Applications.
2. Open the menus.
3. Select Delete on the App menu.
4. If you want to remove an application from an expansion card, insert the card into your Treo smartphone.
5. Select the Delete From pick list and select the location of the application you want to remove.
6. Select the application that you want to remove.
7. Select Delete.
8. Synchronize to remove the application from the Backup folder on your computer.

If the application re-appears on your phone, you may need to manually delete it from your computer. Locate your Backup folder on your computer (Windows: C:\Program Files\palmOne\<username>; Mac: Mac HD\Applications\palmOne\Users\<user name>). If you find a PRC or PDB file for the application you just removed, delete the file from the Backup folder.

Some applications are factory-installed on your phone and cannot be deleted. These are listed with a Lock icon next to them.

If you upgraded from a previous version of Palm Desktop software your backup folder may be located in the Palm folder.

Applications deleted from your phone are kept on your computer, in the Archive folder of your user folder.

# Viewing application info

The Info screens display basic statistics about the applications on your Treo smartphone.

1. Go to Applications .
2. Open the menus .
3. Select Info on the App menu.
4. At the bottom of the screen, select the type of information you want to view:
   - Version: The version numbers of applications on your smartphone.
   - Size: The size (in kilobytes) of applications and information on your smartphone.
   - Records: The number of entries in different applications on your smartphone.
5. Select Done.

# Using expansion cards

The expansion card slot on your Treo smartphone enables you to add Secure Digital (SD) cards and MultiMediaCard cards to extend the storage capacity of your smartphone. For example, SD or MultiMediaCard expansion cards can store:

- Photos
- MP3 audio files
- Email attachments
- Games
- eBooks
- Applications
- Databases
- other file types

Your Treo 650 smartphone is also compatible with Secure Digital input/output (SDIO) cards, which let you add accessories, such as a presentation module, to your phone.

Although expansion cards are sold separately, your smartphone includes a dummy, non-functional card inside the expansion card slot. When you do not have a functioning card inside the expansion card slot, reinsert the dummy card to protect the slot opening.

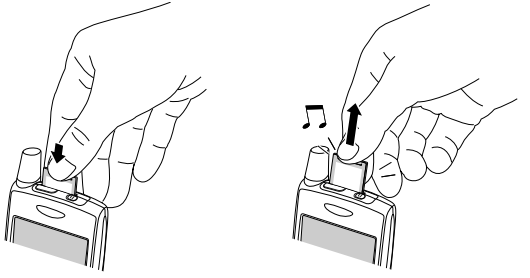
SD cards are faster than MultiMediaCard cards for reading and writing information.

When you're not using the expansion card, reinsert the dummy card to keep the expansion card slot clean.

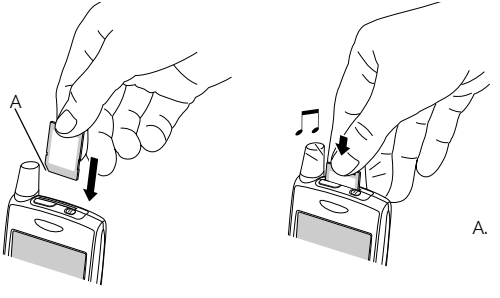
The warranty does not cover damage by Secure Digital (SD) cards that do not meet SD Memory Card Specifications. SD cards that do not meet SD Memory Card Specifications may damage the Treo 650 smartphone. SD cards that do meet SD Memory Card Specifications are marked with the following logo:

## Inserting and removing expansion cards

1. Press down and release the dummy card.
2. After you feel the expansion card slot eject the dummy card, remove the card from the slot.



3. Hold your smartphone with the screen facing you and the card with the label facing you. The notch on the card should be in the lower-left corner next to the antenna.
4. Insert the card into the expansion card slot until you feel it lock into place and hear the confirmation tone.

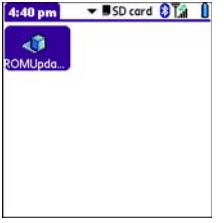



A. Notch

When you insert an expansion card, the card name appears as a category with a Card icon next to the name. To switch between the applications on the expansion card and your phone, select the category pick list at the top of the screen and select another category.

In order to run an application on an expansion card, you must have enough free space in the internal memory of your Treo smartphone to accommodate the program.

## Opening applications on an expansion card




After you insert an expansion card in the expansion card slot, you can open any of the applications stored on the expansion card.

1. Insert the expansion card into the expansion card slot. The Applications View automatically appears.
2. Select the icon for the application you want to open.
3. Press Center to open the application.

Before you copy an application to an expansion card, make sure that it is compatible with Palm OS version 5.4.5 or later. Some applications do not work with expansion cards and do not allow you to store files in a location that is separate from the application.

## Copying applications to an expansion card or smartphone

You can copy applications from your Treo smartphone to your expansion card vice versa.

1. Go to Applications.
2. Open the menus.
3. Select Copy on the App menu.
4. Select the Copy To pick list and select the destination: card name or Phone.
5. Select the From pick list and select the location of the application you want to copy: card name or Phone.
6. Highlight the application you want to copy.
7. Select Copy.

## Viewing expansion card information

The Card Info application displays general information about the expansion card that is currently in the expansion card slot.

- Go to Applications and select Card Info .

## Renaming an expansion card

If you change the contents of an expansion card, you may at some point want to rename the card to better match its contents.

1. Insert the expansion card into the expansion card slot.
2. Select the category pick list at the top of the screen and select All.
3. Select Card Info .
4. Open the menus .
5. Select Rename Card on the Card menu.
6. Enter a new name for the card.
7. Select OK.

## Formatting an expansion card

Formatting an expansion card is similar to formatting a disk on a computer. When you format an expansion card, you erase all the information stored on the card.

1. Insert the expansion card into the expansion card slot.
2. Select the category pick list at the top of the screen and select All.
3. Select Card Info .
4. Open the menus .
5. Select Format Card on the Card menu.
6. Enter a new name for the card.
7. Select OK.

Before copying information to, renaming, or formatting an expansion card, make sure the card is not write-protected. See the instructions that came with your card for details.

# when you're ready:

# customizing your Treo™ smartphone

# Phone settings

## Selecting ringtones

You can set different tones for different types of incoming phone calls and alerts.

1. Press the Phone/Send button.
2. Open the menus.
3. Select Options, and then select Sound Preferences.
4. Select the Tones box.
5. Select ringtones and alerts from any of the following pick lists:
   - Known Caller Tone: An incoming call from someone in your Contacts or Favorites.
   - Unknown Caller Tone: An incoming call from someone identified by caller ID who is not in your Contacts or Favorites.
   - Roaming Tone: A special tone for incoming calls when you're outside your home mobile network.
   - Voicemail Tone: A new voicemail.
   - Service Tone: A warning of a service change, such as moving into or out of a mobile network coverage area.

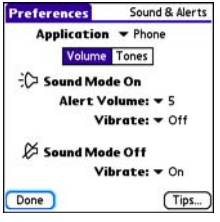
6. Select Done.

You can also preview, delete, and send sounds on your phone. Go to Applications and select Sounds. Select Tones, and then select Manage. To play a sound, select it and press Center. To delete a sound, select it and press Backspace, and to send a sound, select it and then select Send.

Want more ringtones? You can download any compatible ringtone directly to your phone (see "Downloading files from a web page" on page 87). You can also download ringtones to your computer and then email them to your phone.

## Selecting Alert Volume and Vibrate settings

1. Press the Phone/Send button.
2. Open the menus.
3. Select Options, and then select Sound Preferences.
4. Select the Alert Volume pick list and select a volume level.
5. Select the first Vibrate pick list and indicate if you want your phone to vibrate when you receive a call or alert and Sound Mode is on.
6. Select the second Vibrate pick list and indicate if you want your phone to vibrate when you receive a call or alert and Sound Mode is off.
7. Select Done.




## Adjusting call or music volume

While a call is in progress, press the Volume button on the side of your Treo™ 650 smartphone to adjust the call volume. While music is playing, press the Volume button to adjust the music volume.

## Adjusting ringer volume

When a call is not in progress and music is not playing, press the Volume button on the side of your Treo smartphone to adjust ringer volume, and then press the Center button to confirm your selection.

Slide the ringer switch to Sound Mode Off mode at any time to silence the ringer immediately.

## Assigning a caller ID photo

1. Press Phone/Send .
2. Select the Contacts favorites button.
3. Open the contact you want to give a photo caller ID.
4. Select the Picture box.
5. Select Camera to take a photo and add it to this contact entry when you save the photo (if your Treo smartphone includes a camera), or select Photos to add an existing photo to this contact entry.

6. Select the photo you want to assign to this contact.
7. Select Done.

## Assigning a caller ID ringtone

1. Press Phone/Send .
2. Select the favorite you want to give a ringtone.
3. Open the menus .
4. Select Edit Favorites Button on the Record menu.
5. Select the Ringtone pick list and select a tone for this contact entry.
6. Select OK.

## Selecting wallpaper for the Phone application

If you have images stored on your Treo smartphone, you can select different wallpaper for the Main View in the Phone application.

1. Press Phone/Send .
2. Open the menus .
3. Select Options, and then select General Preferences.
4. Select the pick list at the top of the screen and select Show Wallpaper.
5. Select the thumbnail image and select a wallpaper image for your Phone application.
6. Select OK.

If you prefer to use the onscreen Dial Pad, assign the Dial Pad as the default wallpaper.

If you remove the Dial Pad as the wallpaper, you can still access it quickly. Press Phone/Send, and then press Center. Dial Pad is always the first selection on your redial list.

You can also set the background for the Calendar Agenda View. See "Customizing display options for your calendar" on page 104 for details.

# System sound settings

If the ringer switch is set to no sound, the ringer setting overrides the sound settings and all sounds are turned off.

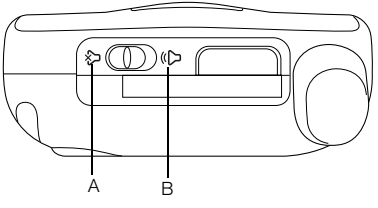
Your Treo smartphone includes a silent alarm that can vibrate even when the ringer switch is set to Sound Mode Off.

You can immediately silence all sounds on your Treo 650 smartphone, including phone ringtones, Calendar alerts, and system sounds. This does not mute the speaker during a phone call.

## Setting the ringer switch

1. Slide the ringer switch to Sound Mode Off.
2. To hear all sounds again, slide the ringer switch to Sound Mode On.

When you slide the ringer switch back to the Sound Mode On position, it restores the previous sound settings. For example, if the phone ring volume is set to 7 and you slide the ringer switch to Sound Mode Off, you will not hear the phone ring. When you move the ringer switch back to Sound Mode On, the phone ring volume is still set to 7.




A. Sound Mode On
B. Sound Mode Off

## Setting system volume levels

1. Go to Applications and select Sounds .
2. Select the Application pick list and select General.
3. Select the System Volume and Game Volume pick lists and select a volume level.
4. Select Done.

# Display and appearance

## Adjusting the brightness

Depending on the lighting conditions in which you're using your Treo smartphone, you may need to adjust the brightness of the screen.

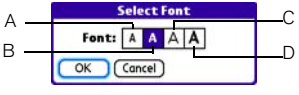
1. Press Option, and then press the backlight button.
2. Press Left ◀ and Right ▶ to adjust the brightness.
3. Select Done.

To automatically set the brightness to the preset low setting, press Option, and then press Right Shift.

## Changing the screen font

You can change the screen font in Calendar, Contacts, Memos, Messaging, and Tasks. The font styles may vary between applications.

1. Open the application in which you want to change the font.
2. Open the menus.
3. Select Options, and then select Font.
4. Select a font style.




A. Small font
B. Small bold font
C. Large font
D. Large bold font

5. Select OK.

You can also set the wallpaper for the Main View in the Phone application (see "Selecting wallpaper for the Phone application" on page 141) and the background for the Calendar Agenda View (see "Customizing display options for your calendar" on page 104).

## Aligning the screen

Occasionally, your smartphone screen may need to be readjusted. If this occurs, you may see the wrong feature being activated when you tap the screen. To fix the problem, you can align the screen any time.

1. Go to Applications and select Prefs .
2. Select Touchscreen.
3. Follow the onscreen instructions.
4. Select Done.

## Changing the system color scheme

1. Go to Applications and select Prefs .
2. Select Color Theme.
3. Select a color scheme.
4. Select Done.

# Applications settings

You can change the Applications settings on your Treo 650 smartphone so that you can easily access the applications you use most often. You can arrange and display your applications by category, reassign the buttons on your smartphone, and select default applications for specific tasks.

## Arranging applications by category

You can assign an application to a category and then display a specific category of applications in the Applications View.

1. Go to Applications.
2. Open the menus.
3. Select Category on the App menu.
4. Select the pick list next to each application and select a category.
5. Select Done.

## Displaying applications by category

Do one of the following:

- Press Applications repeatedly to cycle through the categories.
- Select the category pick list at the top of the screen and select a category.

To create a new category, select the category pick list and select Edit Categories. Select New, and then enter the category name. Select OK to close the dialog box, and then select OK.

## Selecting the applications display

By default, the Applications view displays each application as an icon. As an alternative, you can view a list of applications. The list view is particularly useful when you have several applications in a category.

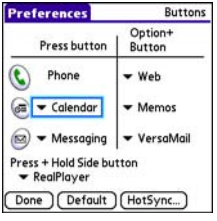
1. Go to Applications.
2. Open the menus.
3. Select Options, and then select Preferences.
4. Select the View By pick list and select List.
5. Select OK.

# Button settings

## Setting Buttons Preferences

Buttons Preferences lets you select which applications are associated with the buttons on your Treo smartphone.

1. Go to Applications and select Prefs .
2. Select Buttons.
3. Select the pick list next to the button or key combination you want to re-assign and select an application.
4. Select Done.




## Setting default applications

Sometimes, one application looks for another application to handle information (for example, a mail application might open a browser when you select a link in an email message).

1. Go to Applications and select Prefs .
2. Select Default Apps.
3. Select each pick list and select the application you want to associate with that function.
4. Select Done.

You can also pick an application to open with the sync button on the USB sync cable.

To restore all the buttons and key combinations to their factory settings, select Default.

# Date and time settings

## Setting the date and time

By default, your smartphone synchronizes the date and time with the network when your phone is on and you are inside a coverage area. Date & Time Preferences enables you to manually set the time, date, time zone, and Daylight Savings Time setting for your Treo smartphone.

1. Go to Applications and select Prefs .
2. Select Date & Time.
3. Uncheck the Enable Local Network Time box.
4. Select the Location pick list and select the city closest to your current location. If a nearby city is not on the list, follow these steps to add a city:
   - Select Edit List.
   - Select Add.
   - Select a city in your time zone, and then select OK.
   - If necessary modify any of the settings in the Edit Location dialog box.
   - Select OK.
5. Select the Set Date box. Highlight the current year, month, and date, and then press Center to set the date.
6. Select the Set Time box, and then select the current time.
7. Select OK.
8. Select Done.

## Setting date and time formats

Formats Preferences enables you to select number conventions based on geographic regions. For example, in the United Kingdom, time often is expressed using a 24-hour clock. In the United States, time is expressed using a 12-hour clock with an AM or a PM suffix. All the built-in applications on your Treo smartphone use the Format Preferences settings.

1. Go to Applications and select Prefs .
2. Select Formats.
3. Set any of the following preferences:
   - Preset to: The standard number conventions for your country. When you select a country, the other Formats Preferences are automatically set to that country's conventions. You can also edit each option individually.
   - Time: The time format. Select HH:MM to display a 24-hour clock.
   - Date: The date format.
   - Week starts: The first day of the week (usually Sunday or Monday).
   - Numbers: The format for numbers with decimal points and commas.
4. Select Done.

The Week starts setting controls the Day, Week, Month, Year, and List Views in Calendar and all other aspects of your phone that display a calendar.

# Power Preferences

Power Preferences enable you to set the auto shutoff interval and the beam receive feature for your Treo 650 smartphone.

1. Go to Applications and select Prefs .
2. Select Power.

3. Set any of the following preferences:
   - Auto-off After: The time that elapses before your screen turns off automatically.
   - Beam Receive: The setting for whether you want your Treo smartphone to receive beamed information.
4. Select Done.

# Locking your phone and info

Your Treo smartphone includes several features that help you protect your device from inadvertent use and keep your information private. The built-in security software enables you to use your smartphone for emergency calls even if the handset is locked.

- Keyguard: Manually disables all buttons and the screen's touch-sensitive feature to prevent accidental presses in your briefcase or pocket.
- Auto-Keyguard and touchscreen lockout: Automatically enables Keyguard after a period of inactivity and lets you disable the screen's touch-sensitive feature during an active call or call alert.
- Phone Lock: Requires a password to make and receive calls.
- System password lock: Requires a password to see any information on your smartphone.
- Private records: Masks or hides items marked as private and requires a password to view them.



To avoid accidentally pressing onscreen buttons while you're holding the phone up to your ear to speak, you can disable the screen's touch-sensitive feature during active calls. When the screen's touch-sensitive feature is disabled, you must use the 5-way navigator to access the buttons on the Active call screen. (See "Using Auto-Keyguard and touchscreen lockout" on page 152).

## Using Keyguard

Your Treo smartphone includes a feature that locks the keyboard so that you don't accidentally press buttons or activate screen items while the phone is in a pocket or bag.

1. With the screen on, press Option and the Power/End button to enable Keyguard.
2. To disable Keyguard, press Center.

To change your password, select the Password box, enter your current password, and then enter the new password. To delete your password, select the Password box, and then select Unassign.

## Using Auto-Keyguard and touchscreen lockout

Auto-Keyguard lets you automatically lock the keyboard after a period of inactivity.

1. Go to Applications and select Prefs .
2. Select Keyguard.
3. Set either of the following preferences:
   - Auto-Keyguard: The period of inactivity that passes before the keyboard automatically locks.
   - Disable touchscreen when: The conditions that disable the screen's touch-sensitive feature.
4. Select Done.

## Using Phone Lock

You can lock your device to prevent unauthorized use of voice and data calls. When your device is locked, you must enter the correct code to unlock it. You can, however, still place emergency calls when your phone is locked.

1. Press Phone/Send .
2. Open the menus .
3. Select Options, and then select Phone Lock.
4. (Optional) Select Advanced, enter up to three numbers (in addition to 911) that you can dial when your phone is locked, and then select OK.
5. Select one of the following Lock Phone options:
   - On phone power off: locks your phone each time you turn it off. When this setting is active, you must enter your lock code each time you turn your phone on again.
   - Immediately: locks your phone when you select OK. The next time you turn your phone on again you must enter your lock code. After that, you can turn your phone on again without entering your lock code.

6. When prompted, enter the lock code, and then select OK. (Unless you changed your lock code, the lock code is the last four digits of your phone number.)
7. If you want to change the lock code, select Change Lock Code, enter a new lock code, and then select OK. Repeat this step to verify the new lock code.
8. Based on the option you selected in step 5, do one of the following to lock your phone:
   - For On phone power off, turn off your phone.
   - For Immediately, select OK.
9. To unlock your phone, dial a number, enter your lock code, and then select OK.

To permanently unlock your device:

1. Open the menus .
2. Select Options, and then select Phone Lock.
3. Uncheck the box On phone power off.
4. Your lock code is required to change this setting.

## Using system password lock

To protect your personal information, you can lock the system so that you need to enter your password to access any of your information or use other features of your Treo smartphone.

1. Go to Applications and select Security .
2. Select the Password box.
3. Assign a password and a password hint.
4. Select the Auto Lock Device box.
5. When prompted, enter your password.
6. Select one of the following options:
   - Never: Prevents your smartphone from locking automatically.
   - On power off: Locks your smartphone when you turn off the screen, or when it shuts off with the Auto-off feature.

IMPORTANT: If you lock your system, you must enter the exact password to unlock it. If you forget the password, you need to perform a hard reset to resume using your phone. Performing a hard reset deletes all the entries in your phone. However, you can restore all previously synchronized info the next time you sync (see "Synchronizing contacts and other information" on page 31).

To lock your system manually, select Lock & Turn Off, and then select Off & Lock.

- At a preset time: Locks your smartphone at a specific time of day.
- After a preset delay: Locks your smartphone after a period of inactivity.

## Setting Owner Preferences

You can use Owner Preferences to record information that you want to associate with your Treo smartphone, such as your name, company name, and phone number. If you lock your keyboard, the Owner Preferences information appears on the screen that requests your password to unlock it, and you must also enter your password to change the Owner Preferences information.

1. Go to Applications and select Prefs .
2. Select Owner.
3. If you assigned a password with the Security application, select Unlock, enter your password, and then select OK to continue.
4. Enter the text that you want to appear in the Owner Preferences screen.
5. Select Done.

## Working with private entries

In most applications you can mark individual entries as private. All private entries remain visible and accessible until you select the Security setting to hide or mask them. When you hide entries, they do not appear anywhere in the application. When you mask entries, a visual placeholder appears where the entry would normally appear. If you define a password, you must enter it to display private entries. If you do not define a password, you (or anyone else) can reveal private entries without a password.

1. Display the entry that you want to mark private.
2. Select Details.
3. Check the Private box.
4. Select OK.

## Hiding or masking all private records

Make sure the entries you want to mask are marked private.

1. Go to Applications and select Security .
2. Select the Current Privacy pick list and select either Hide Records or Mask Records.

## Viewing all private records

Make sure the entries you want to mask are marked private.

1. Go to Applications and select Security .
2. Select the Current Privacy pick list and select Show Records.
3. If the Show Private Records dialog box appears, enter your password, and then select OK.

As a security measure, masked Contacts entries are temporarily hidden when you perform a search. So you will not see a placeholder for masked entries when viewing the results of a Lookup or Find request.

## Viewing private entries in a specific application

Open the application that contains the private entries you want to display.

1. Open the menus .
2. Select Options, and then select Security.
3. Select the Current Privacy pick list and select Show Records.
4. Select OK.

## Security and Palm® Desktop software (Windows)

The Windows version of Palm Desktop software observes the security password for your Treo smartphone. If you forget your password, you cannot view your information in Palm Desktop. You can change your password, but all entries marked as private will be deleted. You can restore these entries the next time you sync.

1. Go to Applications and select Security .
2. Select the Password box.
3. Select the Lost Password box.
4. Select Yes.

If you want additional security for Palm Desktop files, you may wish to purchase a third-party solution.

## Connecting to a virtual private network

If you want to use your Treo smartphone to access your corporate email account or other files on your corporate server, you may need to set up a virtual private network (VPN) on your smartphone. A VPN enables you to log in to your corporate server through the company's firewall (security layer). Without a VPN, you cannot break through the firewall to gain access to the server.

You need to set up a VPN to access a corporate server in either of the following two situations:

- Your company's wireless local area network (LAN) is located outside the firewall.
- Your company's wireless LAN is located inside the firewall, but you are trying to access the network from outside the firewall (for example, from a public location or at home).

Check with your company's system administrator to see if a VPN is required to access the corporate network. If you need a VPN, you must purchase and install a third-party VPN client to use this feature.

1. Install your third-party VPN client. See “Installing applications” on page 128 for details.
2. Go to Applications and select Prefs .
3. Select VPN.
4. Enter the settings provided by your corporate system administrator.

# if something happens:
# help

???

# Upgrading from another Palm Powered™ device

Always use the same language for your Treo smartphone, your operating system, and your desktop software. Otherwise, you may lose information or have difficulty with synchronization. Support is not provided for mix-and-match language setups.

Some third-party utilities allow you to back up your old device's information onto an expansion card, and then transfer the info to your Treo smartphone. We do not recommend this method because any incompatible applications are also transferred to your smartphone.

You can transfer all compatible applications and information from your previous device to your new Treo™ 650 smartphone. This includes your calendar events, contacts, memos, and to do items, as well as your application settings and any compatible third-party applications and files.

During the installation, some third-party applications may be quarantined because they are not compatible with the Palm OS® software version 5.4 on your new Treo smartphone. Quarantined files are not installed on your smartphone nor are they deleted; these files are placed in a new folder on your computer.

1. Calculate how much space your applications and info occupy on your old device. From the Applications screen, open the menus. Select Info on the App menu. At the bottom of the screen, select Size. Look at the numbers on the Free Space line and subtract the number on the left from the number on the right to calculate the space used. For example, on the device shown here, 19.6 - 17.8 = 1.8. This means that 1.8MB of space is occupied on this device.

2. If the space occupied on your old device is less than 20MB, go to step 3. If more than 20MB is occupied, then do any of the following to free up some space before you go to the next step:
   - Delete any third-party applications that you no longer use.
   - Move large files, such as eBooks and images, to an expansion card.

- Move third-party applications to an expansion card.
- Purge old info in applications such as Calendar (Date Book), To Do, and email. Refer to the documentation that came with your old device for instructions on the items listed above.

3. Synchronize your old device with your old desktop software to back up your information one last time.
4. Install the desktop synchronization software from the palmOne Software Installation CD (see "Installing the desktop synchronization software on your computer" on page 30).
5. During the installation process, sync your new Treo smartphone with your new desktop software as instructed. When prompted to select a username for your new smartphone, be sure to select the existing username for your old device.
6. (Mac users only) If you have pictures on your old device, copy them from your old device to an expansion card or beam them to your new Treo 650 smartphone.
7. If you plan to continue using your old device, perform a hard reset (see "Performing a hard reset" on page 167) to remove its associated username. Each device you synchronize with your computer must have a unique name. The next time you synchronize your old device with your computer, be sure to assign it a new username.

If any third-party applications are quarantined during the installation, do not manually install any of the quarantined files. Contact the third-party developer for software updates and info about compatibility with your Treo 650 smartphone.

## What's new on your Treo™ 650 smartphone

After upgrading, there are a few things you need to know about your new Treo smartphone. If you're upgrading from a Treo™ 600 smartphone, all of the following items apply to you. If you're upgrading from another device, some of these items may not apply to you.

## ???

To access a menu shortcut, open the menus, and then press the letter for the menu shortcut. Once you remember a shortcut letter, such as X for copy, you can simply press menu and the shortcut letter without viewing the menu item.

- Address Book: This application is now called Contacts. To open Contacts, press the Phone/Send button, and then use the 5-way navigator to select the Contacts favorite (see "Defining favorite buttons" on page 51 for more info).
- Date Book+: This application is now called Calendar. To access this application, press the Calendar button.
- Applications: Some previous Palm Powered devices called this the Home screen or Applications Launcher. To access this screen, press Applications.
- Find: Some previous Palm Powered devices opened this global search engine by tapping the Magnifying Glass icon in the Graffiti area. Now you can access it by pressing Option, and then pressing Shift/Find.
- Menu items: Users familiar with the Graffiti Menu command can now access system menus by pressing Menu (see "Selecting menu items" on page 21).
- Backlight: Your Treo smartphone includes a keyboard backlight. The keyboard backlight activates automatically when the screen turns on. It shuts off automatically when the screen turns off and when an active call lasts longer than a minute.
- Center button: If you used a previous Treo smartphone, you probably pressed the Spacebar to activate commands or dial numbers. With this Treo smartphone, we recommend pressing Center to activate commands and pressing Phone/Send to dial.
- Power/End button: The fourth button on the right is used to turn the wireless features on and off and to wake up and turn off the screen. This button is not used to access applications.
- Internet connection: This Treo smartphone was designed to work on a CDMA high-speed wireless data network. When you sign up for a wireless data account, these settings are automatically configured on your smartphone. If you prefer to use an older, manual dial-up connection, enter your Internet service provider's settings in Network Preferences.

- 5-way navigator compatibility: Some Palm OS 5 applications are optimized for a 5-way navigator on devices other than Treo smartphone. You may notice inconsistencies with software that is not designed with Treo smartphone in mind.
- Web browser bookmarks: You can use the web browser on your Treo 650 smartphone to store up to 100 bookmarks, but you cannot import or transfer bookmarks from other web browsers, such as Web Pro.
- Photos: You can use the Media Desktop application to transfer photos from your old device onto your Treo 650 smartphone (Windows only). To transfer photos from your old device onto your Treo 650 smartphone, open the Media Desktop application, select your username, click Add Media, and locate the files in the backup folder. The files may be located in any of the following folders:
  - C:\Program Files\palmOne\Treo Pictures\<username>
  - C:\Program Files\Handspring\Treo Pictures\<username>
  - C:\Program Files\Palm\Treo Pictures\<username>

## Trouble upgrading?

If you experience problems with your Treo 650 smartphone after performing the upgrade steps in this section, you may have incompatible applications or settings that were not quarantined during the installation process. These files reside in your Backup subfolder. Incompatible applications or settings can lead to numerous issues, including system resets and freezes. If you experience problems after upgrading, follow these steps to correct the problem:

1. Locate your user folder on your computer:
   - Windows: If your username is one word, your user folder name is the same as your username. If your username is two words, your user folder name consists of the second word of your username followed by the first letter of the first word. For example, if your username is John Smith, your user folder is called SmithJ. Your user folder is usually located inside one of the following folders:

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- C:\Program Files\palmOne\
- C:\Program Files\Palm\
- C:\Program Files\Handspring\

- Mac: Your user folder name is the same as your username and is usually found in this location:
  <Mac hard drive> : Users : <Your Mac username> : Documents : Palm : Users.

2. Make a copy of your user folder and store it in a safe place.
   - Windows: Copy the folder and then paste it to your Windows desktop.
   - Mac: Select the folder and Option-drag it to your Mac desktop.
3. Confirm that your copy includes the Backup subfolder and that all the files in the original Backup subfolder are also in the copy of the Backup subfolder.
4. Delete all files from the original Backup subfolder.
5. Perform a hard reset on your smartphone. See "Resetting your Treo™ 650 smartphone" on page 166 for instructions.
6. Sync your Treo 650 smartphone with your new desktop software and be sure to select your existing username.
7. Reinstall third-party applications from the copy of your Backup subfolder. (See "Installing applications" on page 128 for instructions.) We recommend that you install one application at a time to help you identify the application that caused the problem. We also recommend that you DO NOT install any applications that fall into any of the following categories:
   - Modify phone functions, such as ring tones, dialing, or caller ID
   - Replace organizer applications, such as Contacts or Calender
   - Set data connection features, such as activating or ending data connections
   - Web Clipping applications or files, such as PQA files
   - Instant Messaging applications

If you want to continue using these types of applications, please contact the third-party developer for software updates and info about compatibility with your Treo 650 smartphone.

# Trouble installing the desktop software?

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The palmOne Software Installation CD installs the software and drivers that let you synchronize your smartphone with Palm® Desktop software or Microsoft Outlook for Windows. If you want to synchronize with a different personal information manager (PIM), you must install a third-party solution. Contact the PIM's author or vendor to learn if software is available for your Treo smartphone.

1. Restart your computer.
2. Quit any active applications, including virus scanners and Internet security applications.
3. Make sure you're installing the version of the software that came with your smartphone on the palmOne Software Installation CD. Other versions may not work with this Treo smartphone.
4. Make sure your computer profile includes administrator rights to install software. In large organizations, these are usually granted by the system administrator.

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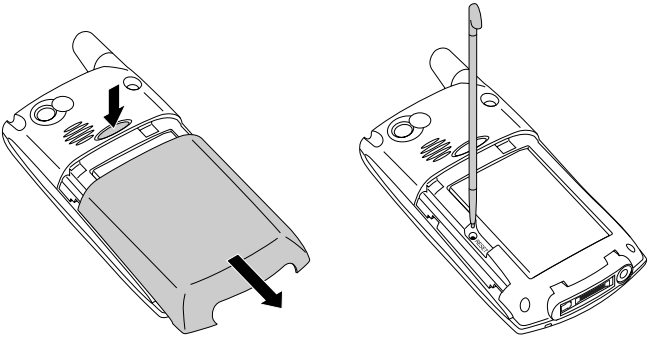
# Resetting your Treo™ 650 smartphone

If you need to perform a system reset and disable conflicting applications, always end the process with a soft reset. This returns your Treo to normal operation.

## Performing a soft reset

A soft reset is similar to restarting a computer. If your smartphone is not responding or you have trouble synchronizing with your computer, a soft reset may help.

1. Press the Battery Door Release button and slide the battery door downward to remove it from your device.
2. Use the stylus tip to gently press the reset button on the back of your smartphone.



## Performing a system reset

A system reset, also called a safe or warm reset, tells your smartphone to stop what it's doing and start over again without loading any system extras. If your smartphone loops or freezes during a soft reset, a system reset may help. Performing a system

reset allows you to get out of an endless loop in order to uninstall a third-party application causing the looping.

1. Press the Battery Door Release button and slide the battery door downward to remove it from your Treo smartphone.
2. While pressing and holding Up ▲, use the tip of the stylus to gently press the reset button on the back of your device.
3. When the Palm Powered logo appears, release Up ▲.
4. Delete the third-party application that you suspect is causing the problem.
5. Perform a soft reset. The wireless features of your phone are not available until you complete this step.

## Performing a hard reset

A hard reset erases all information and third-party software on your Treo smartphone. Never perform a hard reset without first trying a soft reset and a system reset. You can restore previously synchronized information the next time you sync.

A hard reset can tell you whether a problem stems from your smartphone or from an application installed on it. If you do not experience the problem after you perform a hard reset, the problem may be related to software you installed. See "Third-party applications" on page 188 for suggestions on diagnosing third-party software issues.

1. Press the Battery Door Release button and slide the battery door downward to remove it from your smartphone.
2. While pressing and holding Power/End, use the tip of the stylus to gently press the reset button on the back of your smartphone.
3. Continue pressing and holding Power/End. First the palmOne logo appears with a progress bar, and then the circular Palm Powered logo appears. When the circular Palm Powered logo appears, release Power/End.
4. When the "Erase all data?" prompt appears, press Up ▲ to confirm the hard reset.
5. If a language selection screen appears, select the same language you selected for your desktop software.

Some third-party applications do not create a backup on your computer when you synchronize. If you perform a hard reset, you may lose data in these applications and you will need to reinstall the application after the hard reset. Please contact the developer to find out which data is backed up during synchronization.

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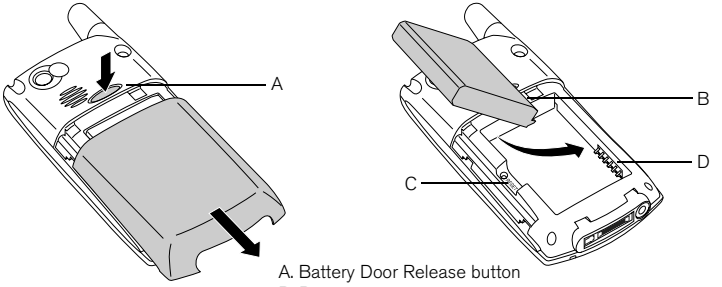
# Replacing the battery

Be sure to dispose of your old battery properly. In some areas, disposal in household or business trash is prohibited.

Your Treo 650 smartphone comes with a replaceable battery. Be sure to use a replacement battery that is recommended or sold by palmOne and is compatible with your Treo 650 smartphone.

Failure to use the proper battery may result in a risk of personal injury or product damage.

1. Press Power/End to turn off the screen.
2. Press the Battery Door Release button and slide the battery door downward to remove it from your smartphone.
3. Place a finger in the notch between the stylus and the battery and lift the battery up at a 45 degree angle.
4. Align the metal contacts on the battery with the contacts inside the battery compartment.
5. Insert the battery into the compartment at a 45 degree angle, pressing it into place. Slide the battery door onto the back of the phone until it clicks into place.
6. Wait for your Treo smartphone to turn on, and then enable the network time or set the date and time when prompted.




A. Battery Door Release button
B. Battery contacts
C. Notch
D. Phone contacts

# Screen

## The screen appears blank

1. When a call lasts longer than one minute, the screen automatically turns off. Press any key except Power/End to wake up the screen. Pressing Power/End hangs up the call.
2. Look closely at the screen. If you can see a dim image, try adjusting the screen brightness (see “Adjusting the brightness” on page 143).
3. If that doesn't work, perform a soft reset (see “Performing a soft reset” on page 166).
4. If that doesn't work, connect the Treo smartphone to the AC charger (see “Charging the battery” on page 12) and perform a soft reset again.
5. If that doesn't work, perform a hard reset (see “Performing a hard reset” on page 167).

## The screen doesn't respond accurately to taps or activates wrong features

1. Go to Applications and select Prefs .
2. Select Touchscreen.
3. Follow the onscreen instructions to align the screen.
4. Select Done.

If the problem still exists:

- Check that no foreign material is trapped between the screen and the bezel edges.
- Check that a screen protector was installed improperly by folding the edges under the bezel.

To find carrying cases that protect the screen and other useful accessories, visit www.palmOne.com/us/support.

# Network connection

Become familiar with low coverage areas where you live, commute, work, and play. Then you will know when to expect signal strength issues.

## Signal strength is weak

1. If you're standing, move about 10 feet in any direction.
2. If you're in a building, move near a window. Open any metal blinds.
3. If you're in a building, move outdoors or to a more open area.
4. If you're outdoors, move away from large buildings, trees, or electrical wires.
5. If you're in a vehicle, move your Treo smartphone level with a window.

## Treo smartphone won't connect to the mobile network

1. Try the suggestions above for weak signals.
2. Turn off your phone and turn it on again (see "Turning your phone on and off" on page 14).
3. Perform a soft reset (see "Performing a soft reset" on page 166).

## Treo smartphone hangs up when I hold it to my ear

You may be accidentally pressing the onscreen Hang Up button with your cheek. Try holding the phone so your face doesn't press against the screen. If this is not convenient, you may want to disable the screen's touch-sensitive feature during active calls (see "Using Auto-Keyguard and touchscreen lockout" on page 152).

## Treo smartphone seems to turn off by itself

If a system error and reset occur, the Treo smartphone automatically turns the phone on if it was on before the reset. However, if the smartphone can't determine if your phone was on before the reset, the phone does not automatically turn on (see "Turning your phone on and off" on page 14).

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## The smartphone makes or answers calls when it's in a briefcase or pocket

Items in your briefcase or pocket may be pressing the onscreen Answer button or otherwise activating screen items. If this happens, be sure to press Power/End to turn off the screen before placing your smartphone in a briefcase or pocket. You may also want to disable the screen's touch-sensitive feature during incoming calls (see "Using Auto-Keyguard and touchscreen lockout" on page 152).

## I can't tell if data services are available

The following icons indicate data services:

| | |
|---|---|
| | Wireless Mode is on but your phone is not connected to any data network. |
| | Your phone is connected to a data network. When the arrows above the signal bars are black, you cannot make a call unless you interrupt the data connection. You can still receive calls. |

## The Treo 650 smartphone won't connect to the Internet

Your Treo 650 smartphone supports CDMA wireless data networks. To connect to the Internet, you must subscribe to and activate data services with your wireless service provider.

- Contact your wireless service provider to verify that your subscription plan includes high-speed data services and that these services have been correctly activated. Your wireless service provider should also be able to tell you if there are any outages in your location.
- Press and hold the Power/End button to turn off your phone. Then press and hold the same button to turn it back on again.
- Perform a soft reset (see "Performing a soft reset" on page 166).

- Confirm that the DUN setting is turned off in the Bluetooth® application (see "Using dial-up networking" on page 61).
- Confirm that high-speed data services are correctly configured on your smartphone:
  1. Go to Applications and select Prefs .
  2. Select Network.
  3. If the Service field says Untitled, select the Service pick list and select the appropriate data service.
  4. Select Done.

## I can't send or receive text messages

- Make sure your phone is turned on (see "Turning the phone on and off" on page 14).
- Contact your wireless service provider to verify that your plan includes messaging services, that these services have been correctly activated, and that they are available at your location.
- If possible, contact the recipient or sender of the message, and make sure the receiving device can accept text messages.
- Confirm that the DUN setting is turned off in the Bluetooth® application (see "Using dial-up networking" on page 61).
- If a text message arrives but does not display an alert, perform a soft reset (see "Performing a soft reset" on page 166).

## I can't make or receive calls using a hands-free device with Bluetooth® wireless technology

- Ensure your Bluetooth device is compatible. Go to www.palmOne.com/us/support/bluetooth/treo650_bluetooth_compatibility.html for a list of compatible devices.
- Confirm the Bluetooth setting is turned on in the Bluetooth application.

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Bluetooth range is up to 30 feet dependent upon environmental conditions; including obstacles, radio interference from nearby electronic equipment, and other factors.

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- Confirm your device with Bluetooth wireless technology is charged and turned on.
- Move the phone and hands-free device closer to each other.
- Confirm that the DUN setting is turned off in the Bluetooth® application (see "Using dial-up networking" on page 61).
- Confirm the Bluetooth application screen is closed.
- Refer to your hands-free device manual for pairing information. Each device manufacturer includes instructions, such as pairing codes, specific to their device.

## I hear static or interference when using my hands-free device

- Move the phone and hands-free device closer to each other. Audio quality will degrade as the distance between your smartphone and hands-free device increases. Effective range varies between different devices and manufacturers.
- Ensure no obstructions, including parts of your body, are between the smartphone and your hands-free device.

## Some features of my hands-free device don't work with my smartphone

- Check the palmOne compatibility list http://www.palmOne.com/us/support/bluetooth/treo650_bluetooth_compatibility.html to ensure your device is compatible.
- Check the manufacturer's website for information specific to your device.

# Dial-up networking

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## My computer does not appear on the Trusted Devices screen

- If you select Add Device and your computer does not appear on the list, select Find More.
- Make sure that the computer's Bluetooth setting is on and that the computer is discoverable. Check with your computer manufacturer for help with accessing these settings.
- Select Find More on the Trusted Devices screen.

## I get a message that there is an error creating a DUN connection with my smartphone

- Re-create the trusted pair between your smartphone and your computer (see "Creating a trusted pair between your smartphone and your computer" on page 61).
- Make sure that the Bluetooth DUN setting on your smartphone is on (see "Enabling DUN on your smartphone" on page 63).

# Synchronization

Synchronization lets you back up the information from your Treo 650 smartphone onto your computer. If you ever need to perform a hard reset or otherwise erase all your information on your smartphone, you can synchronize your phone with your computer to restore the info. To make sure you always have an up-to-date backup of your info, synchronize frequently.

This section describes issues related to synchronization with the Palm Desktop software. You can synchronize the information on your Treo smartphone using the Palm Desktop software or other third party applications. This chapter describes synchronization between your Treo smartphone and a desktop computer.

Before you attempt to synchronize, make sure you've installed the desktop synchronization software from the palmOne Software Installation CD.

Every device needs a unique name. Never synchronize more than one device to the same username on your computer.

## Palm Desktop does not respond to a sync attempt

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As you complete the following steps, synchronize after each step. If the synchronization is successful, you do not need to complete the remaining steps.

1. Verify that the USB sync cable is securely connected at all points (see "Setting up your computer" on page 28).
2. Make sure that HotSync® Manager is running:
   - Windows: Click the HotSync Manager icon in the lower-right corner and make sure Local USB is checked. If you don't see the HotSync Manager icon, click Start, select Programs, select palmOne, and then select HotSync Manager.

   - Mac: Find the Palm folder on your Mac hard drive. Double-click the HotSync Manager icon in the Palm folder. In the Connection Settings panel, set the Local Setup Port to palmOne USB.
3. Verify with your computer hardware vendor that your operating system supports your internal USB controller.
4. Perform a soft reset (see "Performing a soft reset" on page 166).
5. If problems persist and you're synchronizing through a USB hub, try connecting the sync cable to a different USB port or directly to your computer's built-in USB port.
6. Uninstall palmOne software.
7. Reboot your computer.
8. Reinstall the palmOne Software Installation CD that came with your Treo 650 smartphone.

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## Synchronization starts but stops without finishing

If you upgraded from a previous Palm Powered device or received a system error, such as Sys0505, there may be conflicts with software on your phone. As you complete the following steps, sync after each step. If the synchronization is successful, you do not need to complete the remaining steps.

1. Locate your Backup folder and rename the folder (e.g., BackupOld). Note that "palmOne" in the following locations might be "Handspring" or "Palm", based on the device you're upgrading from:
   - Windows: C:\Program Files\palmOne\<username>
   - Mac: Mac HD\Applications\palmOne\Users\<username>
2. Synchronize.
3. Manually reinstall any third-party applications you want on your phone. If necessary, use the items in the old Backup folder you moved.
4. (Windows only) If the Windows New Hardware Wizard appears, the synchronization process may be timing out before the wizard completes its job. Follow all instructions in the New Hardware Wizard, and attempt another sync.
5. Uninstall palmOne software.
6. Reboot your computer.
7. Reinstall the palmOne Software Installation CD that came with your smartphone.

## Synchronization finishes but info doesn't appear where it should

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1. Make sure you're synchronizing with the intended desktop personal information manager (PIM). The palmOne Software Installation CD lets you synchronize your smartphone with Palm Desktop or Microsoft Outlook for Windows. Reinsert the installation CD and select "Change your synchronization method" if necessary. If you use a different PIM, you will need to install third-party software to synchronize. Consult the company that makes the PIM for more information.
2. If there are multiple Palm Powered devices synchronizing with your computer, make sure you are synchronizing with the correct username. If info is not appearing in Palm Desktop, make sure the correct username is selected in the toolbar of Palm Desktop.
3. Open HotSync Manager on your computer, and make sure the necessary conduits are set to Synchronize the files.
4. Uninstall palmOne software.
5. Reboot your computer.
6. Reinstall the palmOne Software Installation CD that came with your smartphone.
7. (Outlook only) With the included software, you can synchronize your Treo smartphone with the root folders of Contacts, Calendar, Tasks, and Notes on your computer. If you want to synchronize your info with a global Exchange Address Book, you must copy the addresses to your local Contacts list in Outlook (right-click the addresses and select Add to Personal Address Book).
8. (Outlook only) Outlook subfolders and public folders are not accessible with the included software. You may wish to use a third-party solution instead.
9. (Outlook only) If you're trying to synchronize offline, be sure to set your Outlook Calendar, Contacts, Notes, and Tasks to be available offline.
10. For more information on Outlook Conduits access the Outlook Conduit online help. Launch HotSync: Custom…, double-click on one of the Outlook conduits and select Help.

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## I have duplicate entries in Microsoft Outlook after I sync

1. Open Microsoft Outlook and delete the duplicate entries.
2. Manually enter any information you've added to your phone since the last time you synchronized.
3. Go to the conduit dialog box for the affected application, and select Desktop overwrites handheld.
4. Synchronize your phone and your computer.
5. Go to the conduit dialog box you selected in step 3, and select Synchronize the files.

## My appointments show up in the wrong time slot after I sync

If you're using Microsoft Outlook:

1. Make sure that you installed the Microsoft Outlook conduit that came with your Treo 650 smartphone. If you're not sure whether this software is installed, reinstall it.
2. Open Microsoft Outlook and correct the wrong entries.
3. Manually enter any information you've added to your phone since the last time you synchronized.
4. Go to the Calendar conduit dialog box, and select Desktop overwrites handheld.
5. Synchronize your phone and your computer.
6. Go to the conduit dialog box, and select Synchronize the files.

You should now be able to assign time zones to your events without encountering this problem.

If you're using Palm Desktop software:

1. On your phone, press Calendar .
2. Open the menus .
3. Select Options, and then select Preferences.
4. Uncheck the New events use time zones box (if it's checked).
5. On your computer, open Palm Desktop software and correct the wrong entries.
6. Manually enter any information you've added to your phone since the last time you synchronized.
7. Go to the Calendar conduit dialog box, and select Desktop overwrites handheld.
8. Synchronize your phone and your computer.
9. Go to the conduit dialog box, and select Synchronize the files.

To avoid this problem in the future, do not assign time zones to your events.

Palm Desktop software does not support time zones.

# Email

## I have problems using my account

Occasionally you may experience problems using an email account after you set it up. If you followed the account setup procedure and are experiencing problems using the account, verify that the account complies with your email provider's requirements by following these steps:

- Verify both your password and your username for your email account.
- Some wireless service providers require you to be on their network to use your email account. If this is the case, be sure to use your provider's network as the connection type for the account.
- Some wireless service providers have other requirements specific to their service. For example, Yahoo! requires you to set up POP mail forwarding for your Yahoo! account to download email messages to your phone. Check with your service provider to see if any provider-specific requirements exist.
- Service provider settings frequently change. If your email account was working but you are currently experiencing problems, check with your service provider to see if any of the account settings have changed.

## I have problems sending and receiving email

Short periods of time when email is unavailable are common due to server problems or poor wireless coverage. If you have problems sending or receiving mail for an extended period of time, check with your ISP or email service provider to verify that the service is working properly.

## Auto Sync is not working

If Auto Sync is occurring and you turn your phone off or the connection to your email service provider is disconnected, the Auto Sync fails.

## I have problems sending email

If you are able to receive email messages but cannot send them, try these steps, in turn:

- Make sure your ISP or email provider allows you to access email on a wireless phone. Several providers, like Hotmail, do not offer this option at all; other providers require an upgrade to access email on a wireless phone.
- Turn on ESMTP. Many services require authenticated access, or ESMTP, to use their SMTP servers.
- Enter the name of a different outgoing mail server for sending mail. Many ISPs, such as cable companies, require that you have an Internet connection to their network to send email through their servers. In this case, you can almost always receive email from these accounts, but if you want to send email, you must send it through another server.

## I have problems synchronizing messages on my phone with messages on my computer

Make sure you have chosen the same settings for the account on both your phone and your computer. For example, if the account is set up on your phone to use the POP protocol, check the HotSync Manager on your computer to make sure that POP is selected as the protocol for that account.

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## My vCard or vCal email attachment isn't forwarding correctly

Palm Desktop software provides several features that work with email client software on a Windows computer. For these features to work correctly, the email client software must be properly set up. Follow these steps to check the settings:

1. Click Start on your computer, and then select Settings.
2. Select Control Panel.
3. Select Internet Options, and then click the Programs tab.
4. Make sure that the email field is set to the correct email client software.
5. Click OK.
6. Start the email client software and make sure it is configured as the default MAPI client. Consult the documentation for your desktop email application for more information.

## After I get messages, either manually or through Auto Sync, messages disappear from my Inbox

If you have an account that uses Microsoft Exchange ActiveSync®, when you perform an Auto Sync, the last seven days' worth of email messages are downloaded from your mail server to your Inbox. All messages older than seven days are deleted from your Inbox; they are not, however, deleted on the server.

You can change the setting in VersaMail® preferences to download fewer than seven days' worth of messages (in which case, more-recent messages will be deleted from your Inbox), or to downloaded all messages regardless of the date (in which case all messages will continue to appear in your Inbox).

## I am using Microsoft Exchange ActiveSync, but the last seven days of email messages and Calendar events are not downloading to my phone

Check with your system administrator to obtain the name of the mail server that offers you wireless access to the corporate mail system. If you cannot obtain the name of this server (some companies do not give it out, because they do not want wireless access to their servers), you cannot synchronize email messages and Calendar events with the server using Microsoft Exchange ActiveSync.

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# Web

Your email application opens when you select an email address on a web page. If nothing happens when you select the link, try setting up your email application first.

## I can't access a page

First, make sure you have Internet access: Open the web browser and try to view a web page you've loaded before. To ensure you're viewing the page directly from the Internet, open the menus, and then select Connect on the Page menu. After confirming your Internet connection, try to view the page in question again. If it comes up blank, open the menus, select Go, and then select Refresh.

If you're still having trouble, the page may contain elements that are not supported by the web browser. These include Flash, Shockwave, VBScript, WML script, and other plugins.

Some websites use a redirector to their true home page. If the web browser can't follow the redirect, try using a desktop browser to see the landing page of the redirector, and enter that address in the web browser.

## An image or map displays too small on the screen

The web browser has two modes: Optimized and Wide Page. Optimized Mode resizes all images and page elements to fit in a single column on the Treo screen. Switch to Wide Page Mode to see the full-size image (see "Creating a bookmark" on page 85).

## A secure site refuses to permit a transaction

Some websites don't support certain browsers for transactions. Please contact the site's webmaster to make sure the site allows transactions using the web browser.

# Camera

If your Treo smartphone does not have a built-in camera, then the information in this section about taking photos does not apply to you.

Here are some tips for taking good photos with the built-in camera:

- Clean the camera's lens with a soft, lint-free cloth.
- Take photos in bright lighting conditions. Low-light images may be grainy, due to the sensitivity of the camera.
- Hold the camera as still as possible. You may want to support your photo-taking arm against your body or a stationary object (such as a wall).
- Keep the subject of the photos still. Exposure time is longer with lower light levels, so you may see a blur.
- For best results, verify that you have the brightest light source coming from behind you, lighting the subject's face. Avoid taking indoor photos with the subject in front of a window or light.
- Make sure the subject is at least 18 inches away from the camera to ensure good focus.

Remember, when you synchronize, your Camera images are stored in the My Pictures/palmOne Photos folder on your hard drive (see "Viewing photos and videos on your computer" on page 96).

## The Camera preview image looks strange

Some third-party applications overwrite the Treo smartphone's color settings with their own 8-bit color settings. This can affect the Camera Preview Mode. Delete third-party applications one by one until the preview image improves.

Photos are 16-bit color at a maximum of 640 x 480 pixels (0.3 megapixels) in VGA resolution or 320 x 240 pixels in QVGA resolution. Videos are 320 x 240 pixels in CIF resolution or 176 x 144 pixels QCIF in resolution.

# ???

# Third-party applications

Remember, not all third-party applications were written with the Treo keyboard and 5-way navigator in mind. You may encounter strange behavior or errors in these applications if you use the keyboard and 5-way navigator.

Sometimes, third-party applications can cause conflicts on your Treo smartphone. Third-party applications that modify wireless features may require extra troubleshooting. If you recently installed an application and your device seems to be stuck, try the following:

1. Perform a soft reset (see "Performing a soft reset" on page 166).
2. If the problem persists, perform a system reset (see "Performing a system reset" on page 166).
3. Delete the most recently installed application from your smartphone (see "Removing applications" on page 130).
4. If the problem persists, perform another system reset.
5. If possible, synchronize to backup your most recent info.
6. If you're unable to perform the steps above or the problem persists, locate your Backup folder on your computer and rename the folder (e.g. BackupOld):
   - Windows: C:\Program Files\palmOne\<username>
   - Mac: Mac HD\Applications\palmOne\Users\<username>
7. Perform a hard reset (see "Performing a hard reset" on page 167).
8. Synchronize to restore the info in your built-in applications.
9. If the problem is resolved, begin reinstalling your third-party applications one at a time: double-click a single file in the original Backup folder that you renamed.
10. If the problem recurs, delete the last application you installed and report the problem to its developer.

## Getting more help

Contact the author or vendor of any third-party software if you require further assistance.

# Error messages

Your Treo smartphone is designed to minimize interruptions when a system error occurs. If your device encounters a system error, it automatically resets itself and resumes functioning as normal. If possible, it even turns your phone back on if it was on before the error occurred.

Sometimes, you might want to know more about an error. Your Treo smartphone uses a special interface to show error messages in greater detail.

1. Press Phone/Send.
2. Press Center, and then select Dial Pad.
3. Enter #*#377, and then press Phone/Send.
4. Review the screen with details about the conditions that lead up to the most recent automatic reset.
5. Select OK.

Please note that third-party developers create their own error messages. If you do not understand an error message, please contact the developer of the application for help.

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# Making room on your Treo™ 650 smartphone

If you store a large number of records, or install many third-party applications, the internal memory on your Treo™ 650 smartphone may fill up. Here are some common ways to clear space:

- Email: Messages that have large attachments can quickly consume memory on your smartphone. Delete emails with large attachments. If you have hundreds of messages with or without attachments, you may wish to delete older messages to make room.
- Camera: Large size images take up a lot of memory. Move images to an expansion card or delete images from your smartphone (see "Viewing photos and videos on your computer" on page 96).
- Internet: If you set a large web browser cache, you may want to use the web browser's advanced Memory Management settings to clear all recent pages (see "Customizing your web browser settings" on page 89).
- Third-party applications: You can delete infrequently used applications or move them to an expansion card (see "Copying applications to an expansion card or smartphone" on page 134).

Also, remember that your smartphone includes an expansion card slot, and that you can store applications and information on expansion cards. However, you still need free memory on the smartphone itself to run applications from an expansion card.

# Voice quality

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## Is the other person hearing an echo?

- Try decreasing the volume on your Treo smartphone to avoid coupling or feedback on the other person's end. This applies to both the speakerphone and to the handset earpiece.
- Position the handset closer to your ear to prevent sound leaking back to the microphone. Keep your hand away from the microphone hole, which is on the bottom right side the phone.
- If you're using Speakerphone mode with your Treo smartphone lying on a flat surface, try turning the smartphone "face down" (screen facing the surface).

## Are you hearing your own voice echo?

Ask the other person to turn down their volume or to hold the phone closer to their ear.

## Is your voice too quiet on the other end?

Be sure to hold the bottom of the Treo smartphone, or the hands-free microphone, close to your mouth.

Check the signal strength indicator. If the signal is weak, try to find an area with better coverage.

# Getting additional help

If you need additional help, visit the customer support web page at www.palmOne.com/us/support.

This site contains information on a variety of topics, including:

- documented solutions
- knowledge library
- support downloads
- customer support
- help forums
- answers to frequently asked questions
- updates
- additional contact information.

# Glossary

**Alt (alternative)** (Alt): A keyboard key. Enter a letter on the keyboard, and then press Alt (Alt) to access variations such as international characters and symbols.

**Applications** : The screen on your Treo™ 650 smartphone from which you can open all applications.

**Auto-off interval:** The time of inactivity that passes before the screen on your Treo turns off. The wireless features on your phone are unaffected by this setting.

**Beam:** The process of sending or receiving an entry or application using the infrared port on your Treo smartphone.

**CDMA (Code-Division Multiple Access): The type of high-speed data network supported by the** Treo 650 smartphone. CDMA/1xRTT devices offer data transmission speeds of up to 150Kbps.

**HotSync®:** The PalmSource technology that synchronizes your Treo and your computer with the simple press of a button.

**HotSync Manager:** The computer application that manages the synchronization of your Treo smartphone with your computer.

**Infrared (IR):** A way of transmitting information using light waves. The IR port on your Treo smartphone lets you transfer information to other IR devices within a short radius.

**Lithium Ion (Li-Ion):** The rechargeable battery technology used in Treo smartphones.

**Option key** : The keyboard button that lets you access the alternative feature that appears above the letter on each key.

**Palm® Desktop software:** A PIM application for computers that helps you manage your personal information and keep your personal information synchronized with your Treo smartphone.

**Palm OS®:** The operating system of your Treo smartphone. A trademark of PalmSource, Palm OS is known for its simplicity of use and for the large number of applications that can be added to your smartphone.

**palmOne™ Quick Install:** The component on your Windows computer that enables you to install Palm OS applications and other information on your Treo smartphone.

Phone/Send : The application on your Treo smartphone that provides quick access to the most commonly used applications on your device.

PIM (personal information manager): A genre of software that includes applications such as Palm Desktop software, Microsoft Outlook, Lotus Notes, and ACT!. PIMs generally store contacts, schedules, tasks, and memos.

Messaging (Short Messaging Service): The service that exchanges short text messages almost instantly between mobile phones. These messages can usually include up to 160 characters. Treo phones can send and receive text messages while you are on a voice call.

Username: The name associated with your Treo smartphone that distinguishes it from other Palm Powered™ devices. When you first synchronize your smartphone, you are asked to give it a username.

FCC Notice

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Antenna Care/Unauthorized Modifications

Use only the supplied integral antenna. Unauthorized antenna modifications or attachments could damage the unit and may violate FCC regulations. Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC RF Safety Statement

In order to comply with FCC RF exposure safety guidelines, users MUST use one of the following types of bodyworn accessories.

1. A palmOne™ brand body-worn accessory that has been tested for SAR compliance and is intended for use with this product.
2. An accessory that contains NO metal (snaps, clips, etc.) and provides AT LEAST 1.5 cm of separation between the users body and the unit.

Do NOT use the device in a manner such that it is in direct contact with the body (i.e., on the lap or in a breast pocket). Such use will likely exceed FCC RF safety exposure limits See www.fcc.gov/oet/rfsafety/ for more information on RF exposure safety.

Specific Absorption Rates (SAR) for Wireless Phones

The SAR is a value that corresponds to the relative amount of RF energy absorbed in the head of a user of a wireless handset.

The SAR value of a phone is the result of an extensive testing, measuring and calculation process. It does not represent how much RF the phone emits. All phone models are tested at their highest value in strict laboratory settings. But when in operation, the SAR of a phone can be substantially less than the level reported to the FCC. This is because of a variety of factors including its proximity to a base station antenna, phone design and other factors. What is important to remember is that each phone meets strict federal guidelines. Variations in SARs do not represent a variation in safety.

All phones must meet the federal standard, which incorporates a substantial margin of safety. As stated above, variations in SAR values between different model phones do not mean variations in safety. SAR values at or below the federal standard of 1.6 W/kg are considered safe for use by the public.

The highest reported (FCC) SAR values of the Treo™ 650 smartphone, by palmOne are:

| Maximum SAR Values | CDMA Cellular | CDMA PCS |
|---|---|---|
| Held to Ear | 1.50 (W/Kg) | 1.33 (W/Kg) |
| Body - Worn | .999 (W/Kg) | .667 (W/Kg) |
| FCC OET Bulletin 65 Supplement C<br>FCC Part 22H and Part 24E<br>Safety: EN 60950: 2000 (Jan-2000) | | |

FCC Radiofrequency Emission

This phone meets the FCC Radiofrequency Emission Guidelines and is certified with the FCC as.

FCC ID number: O8FMADECA.

More information on the phone's SAR can be found from the following FCC Website:
https://gullfoss2.fcc.gov/prod/oet/cf/eas/reports/GenericSearch.cfm.

(The following information comes from a consumer information Website jointly sponsored by the U.S. Food and Drug Administration (FDA) and the Federal Communications Commission (FCC), entitled "Cell Phone Facts: Consumer Information on Wireless Phones." The information reproduced herein is dated July 29, 2003. For further updates, please visit the Website: http://www.fda.gov/cellphones/qa.html.)

What is radiofrequency energy (RF)?

Radiofrequency energy (RF) is another name for radio waves. It is one form of electromagnetic energy that makes up the electromagnetic spectrum. Some of the other forms of energy in the electromagnetic spectrum are gamma rays, x-rays and light. Electromagnetic energy (or electromagnetic radiation) consists of waves of electric and magnetic energy moving together (radiating) through space. The area where these waves are found is called an electromagnetic field.

Radio waves are created due to the movement of electrical charges in antennas. As they are created, these waves radiate away from the antenna. All electromagnetic waves travel at the speed of light. The major differences between the different types of waves are the distances covered by one cycle of the wave and the number of waves that pass a certain point during a set time period. The wavelength is the distance covered by one cycle of a wave. The frequency is the number of waves passing a given point in one second. For any electromagnetic wave, the wavelength multiplied by the frequency equals the speed of light. The frequency of an RF signal is usually expressed in units called hertz (Hz). One Hz equals one wave per second. One kilohertz (kHz) equals one thousand waves per second, one megahertz (MHz) equals one million waves per second, and one gigahertz (GHz) equals one billion waves per second.

RF energy includes waves with frequencies ranging from about 3000 waves per second (3 kHz) to 300 billion waves per second (300 GHz). Microwaves are a subset of radio waves that have frequencies ranging from around 300 million waves per second (300 MHz) to three billion waves per second (3 GHz).

How is radiofrequency energy used?

Probably the most important use of RF energy is for telecommunications. Radio and TV broadcasting, wireless phones, pagers, cordless phones, police and fire department radios, point-to-point links and satellite communications all rely on RF energy.

Other uses of RF energy include microwave ovens, radar, industrial heaters and sealers, and medical treatments. RF energy, especially at microwave frequencies, can heat water. Since most food has a high water content, microwaves can cook food quickly. Radar relies on RF energy to track cars and airplanes as well as for military applications. Industrial heaters and sealers use RF energy to mold plastic materials, glue wood products, seal leather items such as shoes and pocketbooks, and process food. Medical uses of RF energy include pacemaker monitoring and programming.

How is radiofrequency radiation measured?

RF waves and RF fields have both electrical and magnetic components. It is often convenient to express the strength of the RF field in terms of each component. For example, the unit "volts per meter" (V/m) is used to measure the electric field strength, and the unit "amperes per meter" (A/m) is used to express the magnetic field strength. Another common way to characterize an RF field is by means of the power density. Power density is defined as power per unit area. For example, power density can be expressed in terms of milliwatts (one thousandth of a watt) per square centimeter (mW/cm2) or microwatts (one millionth of a watt) per square centimeter (μW/cm2).

The quantity used to measure how much RF energy is actually absorbed by the body is called the Specific Absorption Rate or SAR. The SAR is a measure of the rate of absorption of RF energy. It is usually expressed in units of watts per kilogram (W/kg) or milliwatts per gram (mW/g).

What biological effects can be caused by RF energy?

The biological effects of radiofrequency energy should not be confused with the effects from other types of electromagnetic energy.

Very high levels of electromagnetic energy, such as is found in X-rays and gamma rays, can ionize biological tissues. Ionization is a process where electrons are stripped away from their normal locations in atoms and molecules. It can permanently damage biological tissues including DNA, the genetic material. Ionization only occurs with very high levels of electromagnetic energy such as X-rays and gamma rays. Often the term radiation is used when discussing ionizing radiation (such as that associated with nuclear power plants).

The energy levels associated with radiofrequency energy, including both radio waves and microwaves, are not great enough to cause the ionization of atoms and molecules. Therefore, RF energy is a type of non-ionizing radiation. Other types of non-ionizing radiation include visible light, infrared radiation (heat) and other forms of electromagnetic radiation with relatively low frequencies.

Large amounts of RF energy can heat tissue. This can damage tissues and increase body temperatures. Two areas of the body, the eyes and the testes, are particularly vulnerable to RF heating because there is relatively little blood flow in them to carry away excess heat.

The amount of RF radiation routinely encountered by the general public is too low to produce significant heating or increased body temperature. Still, some people have questions about the possible health effects of low levels of RF energy. It is generally agreed that further research is needed to determine what effects actually occur and whether they are dangerous to people. In the meantime, standards-setting organizations and

government agencies are continuing to monitor the latest scientific findings to determine whether changes in safety limits are needed to protect human health.

FDA, EPA and other US government agencies responsible for public health and safety have worked together and in connection with WHO to monitor developments and identify research needs related to RF biological effects.

What levels of RF energy are considered safe?

Various organizations and countries have developed standards for exposure to radiofrequency energy. These standards recommend safe levels of exposure for both the general public and for workers. In the United States, the FCC has used safety guidelines for RF environmental exposure since 1985.

The FCC guidelines for human exposure to RF electromagnetic fields are derived from the recommendations of two expert organizations, the National Council on Radiation Protection and Measurements (NCRP) and the Institute of Electrical and Electronics Engineers (IEEE). In both cases, the recommendations were developed by scientific and engineering experts drawn from industry, government, and academia after extensive reviews of the scientific literature related to the biological effects of RF energy.

Many countries in Europe and elsewhere use exposure guidelines developed by the International Commission on Non-Ionizing Radiation Protection (ICNIRP). The ICNIRP safety limits are generally similar to those of the NCRP and IEEE, with a few exceptions. For example, ICNIRP recommends different exposure levels in the lower and upper frequency ranges and for localized exposure from certain products such as hand-held wireless telephones. Currently, the World Health Organization is working to provide a framework for international harmonization of RF safety standards.

The NCRP, IEEE, and ICNIRP all have identified a whole-body Specific Absorption Rate (SAR) value of 4 watts per kilogram (4 W/kg) as a threshold level of exposure at which harmful biological effects may occur. Exposure guidelines in terms of field strength, power density and localized SAR were then derived from this threshold value. In addition, the NCRP, IEEE, and ICNIRP guidelines vary depending on the frequency of the RF exposure. This is due to the finding that whole-body human absorption of RF energy varies with the frequency of the RF signal. The most restrictive limits on whole-body exposure are in the frequency range of 30-300 MHz where the human body absorbs RF energy most efficiently. For products that only expose part of the body, such as wireless phones, exposure limits in terms of SAR only are specified.

The exposure limits used by the FCC are expressed in terms of SAR, electric and magnetic field strength, and power density for transmitters operating at frequencies from 300 kHz to 100 GHz. The specific values can be found in two FCC bulletins, OET Bulletins 56 and 65: http://www.fcc.gov/oet/info/documents/bulletins/#56; http://www.fcc.gov/oet/info/documents/bulletins/#65.

Why has the FCC adopted guidelines for RF exposure?

The FCC authorizes and licenses products, transmitters, and facilities that generate RF and microwave radiation. It has jurisdiction over all transmitting services in the U.S. except those specifically operated by the Federal Government. While the FCC does not have the expertise to determine radiation exposure guidelines on its own, it does have the expertise and authority to recognize and adopt technically sound standards promulgated by other expert agencies and organizations, and has done so. (Our joint efforts with the FDA in developing this website is illustrative of the kind of inter-agency efforts and consultation we engage in regarding this health and safety issue.)

Under the National Environmental Policy Act of 1969 (NEPA), the FCC has certain responsibilities to consider whether its actions will significantly affect the quality of the human environment. Therefore, FCC approval and licensing of transmitters and facilities must be evaluated for significant impact on the environment. Human exposure to RF radiation emitted by FCC-regulated transmitters is one of several factors that must be considered in such environmental evaluations. In 1996, the FCC revised its guidelines for RF exposure as a result of a multi-year proceeding and as required by the Telecommunications Act of 1996.

Radio and television broadcast stations, satellite-earth stations, experimental radio stations and certain wireless communication facilities are required to undergo routine evaluation for RF compliance when they submit an application to the FCC for construction or modification of a transmitting facility or renewal of a license. Failure to comply with the FCC's RF exposure guidelines could lead to the preparation of a formal Environmental Assessment, possible Environmental Impact Statement and eventual rejection of an application. Technical guidelines for evaluating compliance with the FCC.
RF safety requirements can be found in the FCC's OET Bulletin 65. http://www.fcc.gov/oet/info/documents/bulletins/#65.

Low-powered, intermittent, or inaccessible RF transmitters and facilities are normally excluded from the requirement for routine evaluation for RF exposure. These exclusions are based on standard calculations and measurement data indicating that a transmitting station or equipment operating under the conditions prescribed is unlikely to cause exposures in

excess of the guidelines under normal conditions of use. Such exclusions are not exclusions from compliance, but, rather, exclusions from routine evaluation. The FCC's policies on RF exposure and categorical exclusion can be found in Section 1.1307(b) of the FCC's Rules and Regulations [(47 CFR 1.1307(b)].

### How can I obtain the Specific Absorption Rate (SAR) value for my wireless phone?

The FCC requires that wireless phones sold in the United States demonstrate compliance with human exposure limits adopted by the FCC in 1996. The relative amount of RF energy absorbed in the head of a wireless telephone-user is given by the Specific Absorption Rate (SAR), as explained above. The FCC requires wireless phones to comply with a safety limit of 1.6 watts per kilogram (1.6 W/kg) in terms of SAR.

Information on SAR for a specific phone model can be obtained for many recently manufactured phones using the FCC identification (ID) number for that model. The FCC ID number is usually printed somewhere on the case of the phone. Sometimes it may be necessary to remove the battery pack to find the number. Once you have the ID number, go to the following Web address: www.fcc.gov/oet/fccid. On this page, you will see instructions for entering the FCC ID number. Type the FCC ID number exactly as requested (the Grantee Code is the first three characters, the Equipment Product Code is the rest of the FCC ID number). Then click on "Start Search." The "Grant of Equipment Authorization" for your telephone should appear. Read through the grant for the section on "SAR Compliance," "Certification of Compliance with FCC Rules for RF Exposure" or similar language. This section should contain the value(s) for typical or maximum SAR for your phone.

Phones and other products authorized since June 2, 2000, should have the maximum SAR levels noted directly on the "Grant of Equipment Authorization." For phones and products authorized between about mid-1998 and June 2000, detailed information on SAR levels is typically found in the exhibits associated with the grant. Once a grant is accessed, the exhibits can be viewed by clicking on "View Exhibit." Grants authorized prior to 1998 are not part of the electronic database but, rather, have been documented in the form of paper records.

The FCC database does not list phones by model number. However, consumers may find SAR information from other sources as well. Some wireless phone manufacturers make SAR information available on their own Web sites. In addition, some non-government websites provide SARs for specific models of wireless phones. However, the FCC has not reviewed these sites and makes no guarantees of their accuracy. Finally, phones certified by the Cellular Telecommunications and Internet Association (CTIA) are required to provide SAR information to consumers in the instructional materials that come with the phones.

### Do hands-free kits for wireless phones reduce risks from exposure to RF emissions?

Since there are no known risks from exposure to RF emissions from wireless phones, there is no reason to believe that hands-free kits reduce risks. Hands-free kits can be used with wireless phones for convenience and comfort. These systems reduce the absorption of RF energy in the head because the phone, which is the source of the RF emissions, will not be placed against the head. On the other hand, if the phone is mounted against the waist or other part of the body during use, then that part of the body will absorb more RF energy. Wireless phones marketed in the U.S. are required to meet safety requirements regardless of whether they are used against the head or against the body. Either configuration should result in compliance with the safety limit.

### Do wireless phone accessories that claim to shield the head from RF radiation work?

Since there are no known risks from exposure to RF emissions from wireless phones, there is no reason to believe that accessories that claim to shield the head from those emissions reduce risks. Some products that claim to shield the user from RF absorption use special phone cases, while others involve nothing more than a metallic accessory attached to the phone. Studies have shown that these products generally do not work as advertised. Unlike "hand-free" kits, these so-called "shields" may interfere with proper operation of the phone. The phone may be forced to boost its power to compensate, leading to an increase in RF absorption. In February 2002, the Federal trade Commission (FTC) charged two companies that sold devices that claimed to protect wireless phone users from radiation with making false and unsubstantiated claims. According to FTC, these defendants lacked a reasonable basis to substantiate their claim.

### What are wireless telephone base stations?

Fixed antennas used for wireless telecommunications are referred to as cellular base stations, cell stations, PCS ("Personal Communications Service") stations or telephone transmission towers. These base stations consist of antennas and electronic equipment. Because the antennas need to be high in the air, they are often located on towers, poles, water tanks, or rooftops. Typical heights for freestanding base station towers are 50-200 feet.

Some base stations use antennas that look like poles, 10 to 15 feet in length, that are referred to as "omni-directional" antennas. These types of antennas are usually found in rural areas. In urban and suburban areas,

wireless providers now more commonly use panel or sector antennas for their base stations. These antennas consist of rectangular panels, about 1 by 4 feet in dimension. The antennas are usually arranged in three groups of three antennas each. One antenna in each group is used to transmit signals to wireless phones, and the other two antennas in each group are used to receive signals from wireless phones.

At any base station site, the amount of RF energy produced depends on the number of radio channels (transmitters) per antenna and the power of each transmitter. Typically, 21 channels per antenna sector are available. For a typical cell site using sector antennas, each of the three transmitting antennas could be connected to up to 21 transmitters for a total of 63 transmitters. However, it is unlikely that all of the transmitters would be transmitting at the same time. When omni-directional antennas are used, a cellular base station could theoretically use up to 96 transmitters, but this would be very unusual, and, once again, it is unlikely that all transmitters would be in operation simultaneously. Base stations used for PCS communications generally require fewer transmitters than those used for cellular radio transmissions, since PCS carriers usually have a higher density of base station antenna sites.

Are wireless telephone base stations safe?

The electromagnetic RF signals transmitted from base station antennas stations travel toward the horizon in relatively narrow paths. For example, the radiation pattern for an antenna array mounted on a tower can be likened to a thin pancake centered around the antenna system. The individual pattern for a single array of sector antennas is wedge-shaped, like a piece of pie. As with all forms of electromagnetic energy, the power decreases rapidly as one moves away from the antenna. Therefore, RF exposure on the ground is much less than exposure very close to the antenna and in the path of the transmitted radio signal. In fact, ground-level exposure from such antennas is typically thousands of times less than the exposure levels recommended as safe by expert organizations. So exposure to nearby residents would be well within safety margins.

Cellular and PCS base stations in the United States are required to comply with limits for exposure recommended by expert organizations and endorsed by government agencies responsible for health and safety. Measurements made near cellular and PCS base station antennas mounted on towers have confirmed that ground-level exposures are typically thousands of times less than the exposure limits adopted by the FCC. In fact, in order to be exposed to levels at or near the FCC limits for cellular or PCS frequencies an individual would essentially have to remain in the main transmitted radio signal (at the height of the antenna) and within a few feet from the antenna. This is, of course, very unlikely to occur.

When cellular and PCS antennas are mounted on rooftops, RF levels on that roof or on others near by would probably be greater than those typically encountered on the ground. However, exposure levels approaching or exceeding safety guidelines should be encountered only very close to or directly in front of the antennas. In addition, for sector-type antennas, typically used for such rooftop base stations, RF levels to the side and in back of these antennas are insignificant. General guidelines on antenna installations and circumstances that might give rise to a concern about an facility's conformance with FCC regulations can be found in A Local Government Official's Guide to Transmitting Antenna RF Emission Safety: Rules, Procedures, and Practical Guidance. This Guide can be accessed at:
http://www.fcc.gov/oet/rfsafety.

Who regulates exposure to radiation from microwave ovens, television sets and computer monitors?

The Food and Drug Administration is responsible for protecting the public from harmful radiation emissions from these consumer products.

Does the FCC routinely monitor radiofrequency radiation from antennas?

The FCC does not have the resources or the personnel to routinely monitor the emissions for all the thousands of transmitters that are subject to FCC jurisdiction. However, the FCC does have measurement instrumentation for evaluating RF levels in areas that may be accessible to the public or to workers. If there is evidence for potential non-compliance with FCC exposure guidelines for a FCC-regulated facility, staff from the FCC's Office of Engineering and Technology or the FCC Enforcement Bureau can conduct and investigation, and, if appropriate, perform actual measurements. Circumstances that could give rise to a concern about an facility's conformance with FCC regulations can be found in A Local Government Official's Guide to Transmitting Antenna RF Emission Safety: Rules, Procedures, and Practical Guidance. This Guide can be accessed at: http://www.fcc.gov/oet/rfsafety. Potential exposure problems should be brought to the FCC's attention by contacting the FCC RF Safety Program at: 202-418-2464 or by email: rfsafety@fcc.gov.

Does the FCC maintain a database that includes information on the location and technical parameters of all the transmitting towers it regulates?

Each of the FCC Bureaus maintains its own licensing database system for the service(s) it regulates (e.g., television, cellular service, satellite earth stations.) The FCC issues two types of licenses: site specific and market based. In the case of site specific licensed facilities, technical operating information is collected from the licensee as part of the licensing process.

However, in the case of market based licensing (e.g., PCS, cellular), the licensee is granted the authority to operate a radio communications system in a geographic area using as many facilities as are required, and the licensee is not required to provide the FCC with specific location and operating parameters of these facilities.

Information on site specific licensed facilities can be found the "General Menu Reports" (GenMen) at http://gullfoss2.fcc.gov/cgi-bin/ws.exe/genmen/index.hts.

The various FCC Bureaus also publish on at least a weekly basis, bulk extracts of their licensing databases. Each licensing database has its own unique file structure. These extracts consist of multiple, very large files. The FCC's Office of Engineering and Technology (OET) maintains an index to these databases at http://www.fcc.gov/oet/info/database/fadb.html. Entry points into the various databases include frequency, state/county, latitude/longitude, call-sign and licensee name. For further information on the Commission's existing databases, you can contact Donald Campbell at dcampbel@fcc.gov or 202-418-2405.

### Can local and state governmental bodies establish limits for RF exposure?

Although some local and state governments have enacted rules and regulations about human exposure to RF energy in the past, the Telecommunications Act of 1996 requires the Federal Government to control human exposure to RF emissions. In particular, Section 704 of the Act states that, "No State or local government or instrumentality thereof may regulate the placement, construction, and modification of personal wireless service facilities on the basis of the environmental effects of radio frequency emissions to the extent that such facilities comply with the Commission's regulations concerning such emissions." Further information on federal authority and FCC policy is available in a fact sheet from the FCC's Wireless Telecommunications Bureau at www.fcc.gov/wtb.

### Do wireless phones pose a health hazard?

The available scientific evidence does not show that any health problems are associated with using wireless phones. There is no proof, however, that wireless phones are absolutely safe. Wireless phones emit low levels of radiofrequency energy (RF) in the microwave range while being used. They also emit very low levels of RF when in the stand-by mode. Whereas high levels of RF can produce health effects (by heating tissue), exposure to low level RF that does not produce heating effects causes no known adverse health effects. Many studies of low level RF exposures have not found any biological effects. Some studies have suggested that some biological effects may occur, but such findings have not been confirmed by additional research. In some cases, other researchers have had difficulty in reproducing those studies, or in determining the reasons for inconsistent results.

### What is FDA's role concerning the safety of wireless phones?

Under the law, FDA does not review the safety of radiation-emitting consumer products such as wireless phones before they can be sold, as it does with new drugs or medical devices. However, the agency has authority to take action if wireless phones are shown to emit radiofrequency energy (RF) at a level that is hazardous to the user. In such a case, FDA could require the manufacturers of wireless phones to notify users of the health hazard and to repair, replace or recall the phones so that the hazard no longer exists.

Although the existing scientific data do not justify FDA regulatory actions, FDA has urged the wireless phone industry to take a number of steps, including the following:

Support needed research into possible biological effects of RF of the type emitted by wireless phones;

Design wireless phones in a way that minimizes any RF exposure to the user that is not necessary for device function; and

Cooperate in providing users of wireless phones with the best possible information on possible effects of wireless phone use on human health

FDA belongs to an interagency working group of the federal agencies that have responsibility for different aspects of RF safety to ensure coordinated efforts at the federal level. The following agencies belong to this working group:

National Institute for Occupational Safety and Health
Environmental Protection Agency
Federal Communications Commission
Occupational Safety and Health Administration
National Telecommunications and Information Administration

The National Institutes of Health participates in some interagency working group activities, as well.

FDA shares regulatory responsibilities for wireless phones with the Federal Communications Commission (FCC). All phones that are sold in the United States must comply with FCC safety guidelines that limit RF exposure. FCC relies on FDA and other health agencies for safety questions about wireless phones.

FCC also regulates the base stations that the wireless phone networks rely upon. While these base stations operate at higher power than do the wireless phones themselves, the RF exposures that people get from these

base stations are typically thousands of times lower than those they can get from wireless phones. Base stations are thus not the primary subject of the safety questions discussed in this document.

What kinds of phones are the subject of this update?

The term "wireless phone" refers here to hand-held wireless phones with built-in antennas, often called "cell," "mobile," or "PCS" phones. These types of wireless phones can expose the user to measurable radiofrequency energy (RF) because of the short distance between the phone and the user's head. These RF exposures are limited by Federal Communications Commission safety guidelines that were developed with the advice of FDA and other federal health and safety agencies. When the phone is located at greater distances from the user, the exposure to RF is drastically lower because a person's RF exposure decreases rapidly with increasing distance from the source. The so-called "cordless phones," which have a base unit connected to the telephone wiring in a house, typically operate at far lower power levels, and thus produce RF exposures well within the FCC's compliance limits.

What are the results of the research done already?

The research done thus far has produced conflicting results, and many studies have suffered from flaws in their research methods. Animal experiments investigating the effects of radiofrequency energy (RF) exposures characteristic of wireless phones have yielded conflicting results that often cannot be repeated in other laboratories. A few animal studies, however, have suggested that low levels of RF could accelerate the development of cancer in laboratory animals. However, many of the studies that showed increased tumor development used animals that had been genetically engineered or treated with cancer-causing chemicals so as to be pre-disposed to develop cancer in the absence of RF exposure. Other studies exposed the animals to RF for up to 22 hours per day. These conditions are not similar to the conditions under which people use wireless phones, so we don't know with certainty what the results of such studies mean for human health.

Three large epidemiology studies have been published since December 2000. Between them, the studies investigated any possible association between the use of wireless phones and primary brain cancer, glioma, meningioma, or acoustic neuroma, tumors of the brain or salivary gland, leukemia, or other cancers. None of the studies demonstrated the existence of any harmful health effects from wireless phone RF exposures. However, none of the studies can answer questions about long-term exposures, since the average period of phone use in these studies was around three years.

What research is needed to decide whether RF exposure from wireless phones poses a health risk?

A combination of laboratory studies and epidemiological studies of people actually using wireless phones would provide some of the data that are needed. Lifetime animal exposure studies could be completed in a few years. However, very large numbers of animals would be needed to provide reliable proof of a cancer promoting effect if one exists. Epidemiological studies can provide data that is directly applicable to human populations, but 10 or more years' follow-up may be needed to provide answers about some health effects, such as cancer. This is because the interval between the time of exposure to a cancer-causing agent and the time tumors develop - if they do - may be many, many years. The interpretation of epidemiological studies is hampered by difficulties in measuring actual RF exposure during day-to-day use of wireless phones. Many factors affect this measurement, such as the angle at which the phone is held, or which model of phone is used.

What is FDA doing to find out more about the possible health effects of wireless phone RF?

FDA is working with the U.S. National Toxicology Program and with groups of investigators around the world to ensure that high priority animal studies are conducted to address important questions about the effects of exposure to radiofrequency energy (RF).

FDA has been a leading participant in the World Health Organization International Electromagnetic Fields (EMF) Project since its inception in 1996. An influential result of this work has been the development of a detailed agenda of research needs that has driven the establishment of new research programs around the world. The Project has also helped develop a series of public information documents on EMF issues.

FDA and the Cellular Telecommunications & Internet Association (CTIA) have a formal Cooperative Research and Development Agreement (CRADA) to do research on wireless phone safety. FDA provides the scientific oversight, obtaining input from experts in government, industry, and academic organizations. CTIA-funded research is conducted through contracts to independent investigators. The initial research will include both laboratory studies and studies of wireless phone users. The CRADA will also include a broad assessment of additional research needs in the context of the latest research developments around the world.

What steps can I take to reduce my exposure to radiofrequency energy from my wireless phone?

If there is a risk from these products--and at this point we do not know that there is--it is probably very small. But if you are concerned about avoiding

even potential risks, you can take a few simple steps to minimize your exposure to radiofrequency energy (RF). Since time is a key factor in how much exposure a person receives, reducing the amount of time spent using a wireless phone will reduce RF exposure.

If you must conduct extended conversations by wireless phone every day, you could place more distance between your body and the source of the RF, since the exposure level drops off dramatically with distance. For example, you could use a headset and carry the wireless phone away from your body or use a wireless phone connected to a remote antenna.

Again, the scientific data do not demonstrate that wireless phones are harmful. But if you are concerned about the RF exposure from these products, you can use measures like those described above to reduce your RF exposure from wireless phone use.

What about children using wireless phones?

The scientific evidence does not show a danger to users of wireless phones, including children and teenagers. If you want to take steps to lower exposure to radiofrequency energy (RF), the measures described above would apply to children and teenagers using wireless phones. Reducing the time of wireless phone use and increasing the distance between the user and the RF source will reduce RF exposure.

Some groups sponsored by other national governments have advised that children be discouraged from using wireless phones at all. For example, the government in the United Kingdom distributed leaflets containing such a recommendation in December 2000. They noted that no evidence exists that using a wireless phone causes brain tumors or other ill effects. Their recommendation to limit wireless phone use by children was strictly precautionary; it was not based on scientific evidence that any health hazard exists.

What about wireless phone interference with medical equipment?

Radiofrequency energy (RF) from wireless phones can interact with some electronic devices. For this reason, FDA helped develop a detailed test method to measure electromagnetic interference (EMI) of implanted cardiac pacemakers and defibrillators from wireless telephones. This test method is now part of a standard sponsored by the Association for the Advancement of Medical instrumentation (AAMI). The final draft, a joint effort by FDA, medical device manufacturers, and many other groups, was completed in late 2000. This standard will allow manufacturers to ensure that cardiac pacemakers and defibrillators are safe from wireless phone EMI.

FDA has tested hearing aids for interference from handheld wireless phones and helped develop a voluntary standard sponsored by the Institute of Electrical and Electronic Engineers (IEEE). This standard specifies test methods and performance requirements for hearing aids and wireless phones so that no interference occurs when a person uses a "compatible" phone and a "compatible" hearing aid at the same time. This standard was approved by the IEEE in 2000.

FDA continues to monitor the use of wireless phones for possible interactions with other medical devices. Should harmful interference be found to occur, FDA will conduct testing to assess the interference and work to resolve the problem.

Which other federal agencies have responsibilities related to potential RF health effects?

Certain agencies in the Federal Government have been involved in monitoring, researching or regulating issues related to human exposure to RF radiation. These agencies include the Food and Drug Administration (FDA), the Environmental Protection Agency (EPA), the Occupational Safety and Health Administration (OSHA), the National Institute for Occupational Safety and Health (NIOSH), the National Telecommunications and Information Administration (NTIA) and the Department of Defense (DOD).

By authority of the Radiation Control for Health and Safety Act of 1968, the Center for Devices and Radiological Health (CDRH) of the FDA develops performance standards for the emission of radiation from electronic products including X-ray equipment, other medical devices, television sets, microwave ovens, laser products and sunlamps. The CDRH established a product performance standard for microwave ovens in 1971 limiting the amount of RF leakage from ovens. However, the CDRH has not adopted performance standards for other RF-emitting products. The FDA is, however, the lead federal health agency in monitoring the latest research developments and advising other agencies with respect to the safety of RF-emitting products used by the public, such as cellular and PCS phones.

The FDA's microwave oven standard is an emission standard (as opposed to an exposure standard) that allows specific levels of microwave leakage (measured at five centimeters from the oven surface). The standard also requires ovens to have two independent interlock systems that prevent the oven from generating microwaves the moment that the latch is released or the door of the oven is opened. The FDA has stated that ovens that meet its standards and are used according to the manufacturer's recommendations are safe for consumer and industrial use. More information is available from: www.fda.gov/cdrh.

The EPA has, in the past, considered developing federal guidelines for public exposure to RF radiation. However, EPA activities related to RF safety and health are presently limited to advisory functions. For example, the EPA now chairs an Inter-agency Radiofrequency Working Group, which coordinates RF health-related activities among the various federal agencies with health or regulatory responsibilities in this area.

OSHA is responsible for protecting workers from exposure to hazardous chemical and physical agents. In 1971, OSHA issued a protection guide for exposure of workers to RF radiation [29 CFR 1910.97]. However, this guide was later ruled to be only advisory and not mandatory. Moreover, it was based on an earlier RF exposure standard that has now been revised. At the present time, OSHA uses the IEEE and/or FCC exposure guidelines for enforcement purposes under OSHA's "general duty clause" (for more information see: http://www.osha-slc.gov/SLTC/radiofrequencyradiation/index.html.

NIOSH is part of the U.S. Department of Health and Human Services. It conducts research and investigations into issues related to occupational exposure to chemical and physical agents. NIOSH has, in the past, undertaken to develop RF exposure guidelines for workers, but final guidelines were never adopted by the agency. NIOSH conducts safety-related RF studies through its Physical Agents Effects Branch in Cincinnati, Ohio.

The NTIA is an agency of the U.S. Department of Commerce and is responsible for authorizing Federal Government use of the RF electromagnetic spectrum. Like the FCC, the NTIA also has NEPA responsibilities and has considered adopting guidelines for evaluating RF exposure from U.S. Government transmitters such as radar and military facilities.

The Department of Defense (DOD) has conducted research on the biological effects of RF energy for a number of years. This research is now conducted primarily at the U.S. Air Force Research Laboratory located at Brooks Air Force Base, Texas. The DOD Web site for RF biological effects information is listed with other sites in conjunction with a question on other sources of information, below.

### Who funds and carries out research on the biological effects of RF energy?

Research into possible biological effects of RF energy is carried out in laboratories in the United States and around the world. In the U.S., most research has been funded by the Department of Defense, due to the extensive military use of RF equipment such as radar and high-powered radio transmitters. In addition, some federal agencies responsible for health and safety, such as the Environmental Protection Agency (EPA) and the U.S. Food and Drug Administration (FDA), have sponsored and conducted research in this area. At the present time, most of the non-military research on biological effects of RF energy in the U.S. is being funded by industry organizations. More research is being carried out overseas, particularly in Europe.

In 1996, the World Health Organization (WHO) established the International EMF Project to review the scientific literature and work towards resolution of health concerns over the use of RF technology. WHO maintains a Web site that provides extensive information on this project and about RF biological effects and research (www.who.ch/peh-emf).

FDA, EPA and other US government agencies responsible for public health and safety have worked together and in connection with WHO to monitor developments and identify research needs related to RF biological effects.

### How does FCC Audit Cell Phone RF?

After FCC grants permission for a particular cellular telephone to be marketed, FCC will occasionally conduct "post-grant" testing to determine whether production versions of the phone are being produced to conform with FCC regulatory requirements. The manufacturer of a cell phone that does not meet FCC's regulatory requirements may be required to remove the cell phone from use and to refund the purchase price or provide a replacement phone, and may be subject to civil or criminal penalties. In addition, if the cell phone presents a risk of injury to the user, FDA may also take regulatory action. The most important post-grant test, from a consumer's perspective, is testing of the RF emissions of the phone. FCC measures the Specific Absorption Rate (SAR) of the phone, following a very rigorous testing protocol. As is true for nearly any scientific measurement, there is a possibility that the test measurement may be less than or greater than the actual RF emitted by the phone. This difference between the RF test measurement and actual RF emission is because test measurements are limited by instrument accuracy, because test measurement and actual use environments are different, and other variable factors. This inherent variability is known as "measurement uncertainty." When FCC conducts post-grant testing of a cell phone, FCC takes into account any measurement uncertainty to when determining whether regulatory action is appropriate. This approach ensures that when FCC takes regulatory action, it will have a sound, defensible scientific basis.

FDA scientific staff reviewed the methodology used by FCC to measure cell phone RF, and agreed it is an acceptable approach, given our current understanding of the risks presented by cellular phone RF emissions. RF

emissions from cellular phones have not been shown to present a risk of injury to the user when the measured SAR is less than the safety limits set by FCC (an SAR of 1.6 w/kg). Even in a case where the maximum measurement uncertainty permitted by current measurement standards was added to the maximum permissible SAR, the resulting SAR value would be well below any level known to produce an acute effect. Consequently, FCC's approach with measurement uncertainty will not result in consumers being exposed to any known risk from the RF emitted by cellular telephones.

FDA will continue to monitor studies and literature reports concerning acute effects of cell phone RF, and concerning chronic effects of long-term exposure to cellular telephone RF (that is, the risks from using a cell phone for many years). If new information leads FDA to believe that a change to FCC's measurement policy may be appropriate, FDA will contact FCC and both agencies will work together to develop a mutually-acceptable approach.

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# Specifications

| | |
|---|---|
| Radio | •CDMA 1900/800 digital dual-band |
| Phone features | • Personal speakerphone<br>• Hands-free headset jack (2.5 mm, 3-barrel connector)<br>• Microphone mute option<br>• TTY compatible<br>• 6-way calling |
| Processor technology | • Intel PXA270 312MHz processor |
| Expansion | • SD/MultiMediaCard/SDIO card slot |
| Battery | • Rechargeable Lithium Ion<br>• Removable for replacement <br>• Up to 5 hours talk time<br>• Up to 300 hours standby<br>• 4 hours full charge time |
| Palm OS® version | • Palm OS 5.4.5 |
| Camera (not included on all models) | • VGA resolution (640 x 480), 0.3 megapixel<br>• Automatic light balance |
| Size | • 4.4 in x 2.3 in x 0.9 in (11.3 cm x 5.9 cm x 2.3 cm) with antenna |
| Weight | • 6.3 ounces (178 grams) |
| Connectivity | • IR<br>• Bluetooth® wireless technology |
| Display | • Touch-sensitive LCD screen (includes stylus)<br>• 65,536 colors (16-bit color)<br>• User-adjustable brightness |
| Keyboard | • Built-in QWERTY keyboard plus 5-way navigator<br>• Backlight for low lighting conditions |

# Specifications

| | | |
|---|---|---|
| Included software | • Phone (including Palm OS Contacts, Favorites, Dial Pad)<br>• Camera<br>• Messaging<br>• Web browser (Internet)<br>• Calendar | • Memos<br>• Tasks<br>• Calculator Basic and Advanced<br>• Palm® Desktop software and HotSync® Manager<br>• World Clock |
| System requirements | • Windows 2000 or XP with USB port<br>• Mac OS 10.2 –10.3 with USB port | • Later versions may also be supported<br>• Later versions may also be supported |
| Operating and storage temperature range | • 32°F to 104°F (0°C to 40°C)<br>• 5% to 90% RH | |